

THE RELATIONSHIP OF ANXIETY AND CARING IN A SOCIALLY CONSTRUCTED  
LEARNING ENVIRONMENT IN BEGINNING NURSING STUDENTS

By

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## ABSTRACT

Initial patient care assignments in the clinical learning environment are described in the literature as one of the most anxiety producing events in the life experience of beginning-nursing students. A repeated measures ANOVA methodology explored the effects of pairing beginning nursing students (n=23), (or not, n=23) in this setting over 3 different time periods on students' perceived anxiety, caring efficacy, and caring ability (N=46), followed by focus group data collection. The State Trait Anxiety Inventory, Caring Efficacy Scale, and Caring Ability Inventory were instruments used to measure these concepts before entering the clinical setting, when changing clinical sites at 5 weeks and at the conclusion of the clinical assignments at 10 weeks (3 times). Focus group interviews consisting of cohorts from the non-paired and paired students were conducted post-clinical experiences and post-quantitative data collection.

There was no statistical difference in the anxiety scores between the non-paired and paired students, however, a correlation was determined between increased caring ability scores and lower anxiety scores occurring more frequently in the paired group of students.

Findings from the follow-up focus group interviews show pairing for initial learning experiences reduced anxiety for collaborative and communication reasons. At a practical level, the findings are important for nursing education practice. Fewer clinical placement needs, increased teaching opportunities, and reported increases in student satisfaction with decreased reports of anxiety were positive findings of the study.

## ACKNOWLEDGEMENTS

I am extremely blessed to be at a place in my life that I have been able to conduct this research that will be used to guide beginning students' learning to become a nurse. It has been difficult for me to decide whether to discuss the "learning" or "caring" first when thinking about teaching the fundamentals of nursing. The two are so intertwined that it is difficult to think that one could be perceived as greater than the other when thinking of teaching nursing principles to beginning students.

Still, the notion that behaviors must be modeled for the student stands out foremost in my philosophy. Therefore, if I am showing the student I "care" by wanting to construct a learning environment and the student knows I have considered them in every way possible, that modeling of caring will be internalized when the students cares for their patient. Nel Noddings says we have to know it to do it.

Therefore, I would like to thank my Dean, Dr. Kathleen Harr, who cared enough to listen to my concerns about not pursuing further education yet gently prodded me to consider and continue. I have gained so much through this endeavor, that I am forever thankful.

Next, to my family who has put up with so much and so little at times from me, yet always were there, with the "if this is what you want to do..." . And although I questioned if this is what I "wanted" to do at times, it is certainly something I feel I was supposed to do because of the students I serve and the patients who need their care.

Lastly, to the School of Education at Kansas University, where the future educators are being molded to teach and lead my grandbabies, I owe a debt of thanks. I am pleased and honored to have worked and learned among them, knowing they feel the same as I do about the importance of the how's and why's of education. Thanks Marc for your encouragement.

**DEDICATION**

\*To my grandparents and my mom and dad, who taught me the  
fundamentals of living and  
loving.

\*To my husband, kids, and grandkids, who are the best thing to have happened to me in this  
life.

\*To my Morris family, who has always provided me with a safety net of love, belonging, and  
encouragement.

## TABLE OF CONTENTS

ABSTRACT.....	iii
ACKNOWLEDGMENTS .....	iv
DEDICATION.....	v
TABLE OF CONTENTS .....	vi
LIST OF TABLES.....	ix
LIST OF FIGURES .....	x
CHAPTER 1 INTRODUCTION .....	1
Definitions of terms .....	5
Significance of study .....	7
Research Questions .....	8
CHAPTER 2 REVIEW OF RELATED LITERATURE .....	9
Introduction .....	9
Neuman's System Model .....	9
Theoretical Foundation of anxiety .....	12
Theoretical foundation of caring .....	14
Caring ability .....	14
Caring efficacy .....	18
Theoretical foundation of collaborative learning .....	18
Summary .....	20
CHAPTER 3 METHODS .....	23
Introduction .....	23
Research Design .....	23
Research Hypotheses .....	23
Description of Population and Sample .....	24
Procedures .....	28
Sample Selection .....	29
Reliability and Validity .....	30

Data Collection Procedure .....	31
Specifications of variables .....	32
Data Analyses .....	35
Data Analysis Procedure .....	35
Assumptions .....	37
Instruments .....	40
State Trait Anxiety Inventory .....	40
Caring Ability Inventory .....	41
Caring Efficacy Scale .....	43
Qualitative Methods	
Research Design .....	44
Research Hypothesis .....	45
Qualitative Sample .....	46
Qualitative Procedures .....	46
Qualitative Analyses .....	47
Summary .....	49
<b>CHAPTER 4 RESULTS</b>	
Quantitative Research Results .....	50
Assumptions .....	50
Equivalence of the two groups. ....	50
Distribution tests .....	54
STAI results. ....	56
CAI results .....	58
CES .....	61
Correlation Analysis .....	63
Qualitative Research Results .....	78
Summary .....	84
<b>CHAPTER 5 DISCUSSION</b>	
Introduction .....	86
Research discussion .....	86
Discussion of Hypothesis One .....	93

Discussion of Hypothesis Two . . . . .	94
Discussion of Hypothesis 1a . . . . .	95
Limitations . . . . .	95
Implications for practice . . . . .	96
Implications for research . . . . .	98
Conclusion . . . . .	99
REFERENCES . . . . .	102
APPENDIX	
A. Human Subjects Committee Approval	
Kansas University . . . . .	113
University B	
B. Information Statement . . . . .	114
C. State Trait Inventory tool . . . . .	115
D. Caring Ability Inventory . . . . .	116
E. Caring Efficacy Scale . . . . .	118
F. Neuman's System Model Diagram . . . . .	121
G. NLN Nursing Student Population Graph . . . . .	122



## TABLES

Table 1: <i>Specification of variables</i>	34
Table 2: <i>Age distribution</i>	51
Table 3: <i>Gender distribution</i>	51
Table 4: <i>Distribution of educational qualifications</i>	52
Table 5: <i>Distribution by previous experience</i>	52
Table 6: <i>Distribution by length of experience</i>	53
Table 7: <i>Tests for equivalent characteristics of the paired and non- paired students</i>	54
Table 8: <i>Tests for normality of State Anxiety scores</i>	55
Table 9: <i>Tests for normality of Caring Ability scores</i>	55
Table 10: <i>Tests for normality of Caring Efficacy Scores</i>	55
Table 11: <i>Test for normality of Trait Anxiety Scores</i>	55
Table 12: <i>Descriptive statistics for State Anxiety</i>	56
Table 13: <i>Tests for homogeneity of variance</i>	57
Table 14: <i>Between-subjects effects for State Anxiety</i>	57
Table 15: <i>Within-subjects effects for State Anxiety</i>	57
Table 16: <i>Descriptive statistics for Caring Ability</i>	59
Table 17: <i>Between-subjects effects for Caring Ability</i>	59
Table 18: <i>Within-subjects effects for Caring Ability</i>	60
Table 19: <i>Descriptive statistics for Caring Efficacy</i>	62
Table 20: <i>Between-subjects effects for Caring Efficacy</i>	62
Table 21: <i>Within-subjects effects for Caring Efficacy</i>	63
Table 22: <i>Correlations between State Anxiety, Caring Ability, and Caring Efficacy</i>	65

## FIGURES

Figure 1: <i>Neuman Systems Model</i>	11
Figure 2: <i>Correlation of caring efficacy and anxiety at Time 1</i>	67
Figure 3: <i>Correlation of caring efficacy and caring ability at Time 1</i>	69
Figure 4: <i>Correlation of caring efficacy and anxiety at Time 2</i>	71
Figure 5: <i>Correlation of caring efficacy and caring ability at Time 2</i>	71
Figure 6: <i>Correlation of caring efficacy and anxiety at Time 3</i>	73
Figure 7: <i>Correlation of caring efficacy and caring ability at Time 3</i>	73
Figure 8: <i>Estimated marginal means of State Anxiety by Intervention</i>	75
Figure 9: <i>Estimated marginal means of Caring Ability by Intervention</i>	76
Figure 10: <i>Estimated marginal means of Caring Efficacy by Intervention</i>	77
Figure 11: <i>Model of study</i>	125

## **Chapter 1: Introduction**

Many who have observed beginning nursing students as they enter their initial clinical care placements see and feel the uneasiness and anxiety experienced by the students. Anxiety is a nearly universal experience for the beginning-nursing student and is described in the literature (Admi, 1997; Beck et. al., 1997; Kleehammer, Hart, & Keck, 1990; Lindop, 1999; Mahat, 1998; Moscaritolo, 2009; Oermann & Standfest, 1997; Sharif & Masoumi, 2005; Shipton, 2002; Wilson, 1994; Wilson, 1995; Windsor, 1987). Although mild to moderate anxiety serves to motivate students, studies show extreme anxiety hinders concentration and may actually interfere with learning, memory and problem solving ability (Gaberson & Oermann, 1997, Moscaritolo, 2009; Sylwester, 1994). This anxiety may affect patient care in the clinical learning setting (Beddoe & Murphy, 2004).

The reasons for this anxiety can be many and it is known that simply presenting information alone is insufficient to reduce this distress (Jones & Johnston, 1997). Once the student enters the clinical setting, the prospect of using knowledge to plan and provide “hands-on”, direct patient care can be overwhelming to the point of impeding the application of clinical skills and knowledge that have already been demonstrated in a laboratory setting (Wolf, Fiscell, & Cunningham, 2008). No matter what the specific worry of the student, it is within nurse educators’ scope of practice to recognize and try to lessen this anxiety for the beginning student so they may learn to care and provide cares for their patients. Exploration of alternatives to the models of teaching and learning that contribute to the perpetuation of this anxiety, or minimally, the inability to help lessen it, must be explored. The effect of anxiety on the students’ ability to care is also important in the clinical setting.

Because nursing is a professional “practice”, what the nursing student does during clinical learning experiences is often considered more important than what can be demonstrated in a classroom when learning to be a nurse (Gaberson & Oermann, 1997; Moscaritolo, 2009). The majority of nursing education occurs during the clinical care component of the novice’s education. This is where the student learns to competently provide care for others. This “learning to care” includes the ability to critically think, perform procedural and technical skills, be legally and ethically accountable, recognizing the need to dedicate oneself to effectively manage an evolving body of knowledge through life-long learning, and being an advocate for the patient to meet the health needs of the patient and the public (American Nurse’s Association [ANA], 2001). Clinical sites that meet these educational criteria are in great demand. With fewer faculty to facilitate learning experiences as well, the available clinical experience opportunities become more crucial (American Association of the College of Nurses [AACN], 2006; Allen, 2008).

There is a projected shortage of at least a quarter of a million nurses in the United States (U.S.) by the year 2025 (AACN, June 2009). Nursing education has a huge void to fill in preparing new, competent and caring practitioners. Knowing that the need for nurses will only continue to increase as the overall population ages and older nurses leave the workforce, nursing education must continue to prepare new nurses to meet the societal demands of a dynamic healthcare system. The profession of nursing must consider all factors that might influence potential students to become registered nurses.

In response to this shortage, there has been an increase in the number of schools preparing nurses and an increase in the overall number of students, which has exacerbated the challenges experienced in nursing education in general. However, one of the biggest

challenges is the shortage of appropriate clinical sites where nurse education can take place (AACN, 2010).

Lack of available and suitable clinical sites, classroom space, clinical preceptors, budget constraints, and an insufficient number of qualified faculty resulted in a loss of almost 50,000 potential students in 2008 (AACN, 2010). Attrition from nursing programs is also a concern (Glossop, 2002), with both academic stress and stress in the clinical setting cited as one of the reasons (Deary et al., 2003), among others. Add to this the fact that fewer students are attracted to the profession and the need for recruiting and retaining qualified, competent, and caring students becomes increasingly important.

The clinical environment, which is a subset of the complex healthcare system the student will be entering as a registered nurse, is where the knowledge, skills and attitudes (KSAs) that allow the student to learn the roles of provider, designer/manager/coordinator of care and member of a profession, must be developed (AACN, 2010). Providing a high quality clinical learning experience is dependent on several factors including optimal use of the student's time and resources, and the assets of the educational institution and community (Diekelmann, 2003; Infante, 1985). The goal of clinical learning experience is to provide an environment that allows the student to safely assimilate their theoretical knowledge into a caring practice (AACN, 2008; Papp, Markkanen, & von Bonsdorff, 2003).

Traditionally, the model used for educational purposes in the clinical care settings is one patient to one student. This is the way most nursing faculty were taught and it is the way they often teach (Billings & Halstead, 2009; Infante, 1985). Although this model seems to work to provide competent and caring graduates, research that examines pedagogical models for nursing education is essential. These educational methods must meet the needs of today's

student entering the nursing profession as well as meeting the needs of the nursing profession. Collaborative learning is a method that may meet both these needs.

Empirical evidence suggests that students feel supported by presence of one another. Collaborative learning refers to methodologies and environments in which learners share common goals and are accountable to other, as well as the outcome. Student interaction creates a synergy of the minds (Leigh & MacGregor, 1992). This is the premise behind pairing students for their beginning clinical experiences where they learn to care for patients.

As the number of clinical sites shrink and student numbers grow, pairing students may provide increased opportunities to construct learning experiences for the increasing number of students. Cooperative and collaborative student learning has demonstrated to be beneficial to the students participating in the activity as they help co-create a culture of mutuality and co-responsibility among professionals (McAllister & Osborne, 1997; Sprengel & Job, 2004). This study explores this intervention. It is important for nurse educators to explore ways to decrease anxiety in the clinical laboratory setting during the students' limited exposure to this educational setting to optimize opportunities to learn to care for others and the self. There is literature that explores pairing students for clinical experiences of different levels to reduce anxiety (Broscious & Saunders, 2001; Pullen, Murray, & McGee, 2001) but there is no research literature on pairing of "same level of education" peers and its effect on anxiety and caring. There is a lack of literature that systematically describes and compares the outcomes of various teaching strategies (Iwasiw & Goldenberg, 1993).

Clinical experience is the place where theory and practice come together and clinical reasoning is constructed in order to learn the art and science and cultural values of the nursing profession. It is the goal and the responsibility of educators involved in these processes to

help students gain clinical expertise and caring knowledge to develop these “existential skills of involvement” (Benner et al., 2009, p. xix). This knowledge is composed of socially embedded clinical (procedural) skills, scientific knowledge and essential caring knowledge. These aspects of nursing practice occur in relationship and can “never get beyond consensual validation” (p. 233). Caring is a social activity and cannot occur in isolation.

This study explored the effects of pairing students for their beginning clinical experiences on anxiety levels, caring ability, and caring efficacy. Caring ability, according to Nkongho (1990), is the ability to care when in a relationship with others (Watson, 2009). Caring efficacy is a contributing factor to these measures as defined by Coates (1997) as the ability to establish a caring relationship with the patient. If a socially constructed environment of collaboration and support affects anxiety and caring behaviors during these beginning experiences, this will be important information to nursing education.

### **Definition of terms**

Clinical, clinical learning, clinical experiences, and clinical education: For purposes of this study, these terms are used interchangeably to mean the purposefully constructed experiences that provide students with the opportunity to apply nursing theory knowledge to patient care activities, and requires direct patient care experience by the student in a predetermined setting.

Beginning-nursing student: For the purpose of this study, beginning-nursing student will be a student entering a baccalaureate degree nursing program where they begin their first nursing theory course work, and nursing clinical course work.

Anxiety: For the purpose of this study, anxiety will be defined as “distress or uneasiness of mind caused by fear of danger or misfortune” as defined by Dictionary.com

(accessed 11/15/08). This state is characterized, according to Spielberger (1983), the developer of the State-Trait Anxiety Inventory for Adults (STAI) by subjective feelings of “tension, apprehension, nervousness, and worry, and by activation or arousal of the autonomic nervous system (ANS)” (p. 4). Neuman (1995) describes stressors in the client (student) environment as causing tension, and this can result in anxiety. Stressors, according to Neuman include tension-producing stimuli occurring within the boundaries of the client system that may be intrapersonal, interpersonal, and/or extrapersonal. The student experience potentially involves all these tension-producing stimuli

Caring and caring ability: For purposes of this study, the *ability to care*, known as “caring” or “to care” is the concept that is explored in the nursing student and is built on four theoretical assumptions. These include:

- (1) caring is multidimensional (with social and attitudinal and cognitive components);
- (2) the potential to care is present in all individuals;
- (3) caring can be learned;
- (4) caring is quantifiable.

Caring is also defined by Noddings as “setting aside of self-concerns to take up the concerns of the other and to seek cues about the other” (Crigger, 2001) and by Watson as a transpersonal approach of interaction with intention, will, value and commitment to another (Adamski, Parsons, & Hooper, 2009).

Care: For the purposes of this study, care includes the planning, provision, and evaluation of helping procedures and other interventions for patients in the acute care, rehabilitation or long-term care setting.



Caring efficacy: For the purposes of this study, caring efficacy will be defined as the perception of the student as to their caring competency and ability to *establish* a relationship with patients in their care.

Collaborative learning or “pairing”: For the purposes of this study, pairing students will be a type of socially constructed, collaborative learning environment that builds upon peer support in beginning clinical learning experiences to address the common goal of learning how to care for a patient. Students in the experimental groups of this study will be paired for their initial experiences with a student entering the experience at the same level and exposure to the academic program. When knowledge is socially constructed, this is known as social constructivism (Young & Maxwell, 2007).

### **Significance of Study**

The process of acquiring knowledge and skills to become a nurse in the clinical experience setting is assumed but not well described (Wilson, 1994). Many who teach nursing have been witness to the student who is “paralyzed with fear” in the beginning levels of clinical experiences and during the initial student-patient interactions when providing care. There is also the impact of the almost universal expectation among nursing programs for the beginning-nursing student to provide care without a substantial amount of theoretical and/or experiential background during their initial clinical experiences. This response has been studied, and anxiety in the novice student is clearly expected (Carlson, Kotze, & vanRooyen, 2003; Cook, 2005; Elliot, 2002; Hayden-Miles, 2002; Kleehammer et al., 1990; Mahat, 1998; Pagana, 1988; Sharif & Masoumi, 2005; Shipton, 2002; Windsor, 1987). Research of interventions used at the primary level of prevention to address this anxiety is minimal.

The goal of this study is to explore the effect of pairing students for beginning clinical experiences on anxiety and caring ability using quantitative methods. These results were then explored by using a qualitative, focus group approach to data analysis. The effect of caring efficacy, defined as the individual's confidence in their ability to "express a caring orientation and establish a caring relationship with patients" (Watson, 2009, p. 163) was also explored. If extreme anxiety impedes learning, and learning to care is important to nursing, it is important to identify the relationship between anxiety and caring and interventions that may affect the student in environment, where these relationships in learning occur.

### **Research Questions**

1. Does pairing student for their initial clinical experience lower the anxiety experienced in beginning clinical-care experiences and improve caring ability scores of the student?
- 1a. What is the lived experience of the beginning nursing student when providing care during his/her initial clinical learning experiences, when paired or not?
2. Is there a relationship between caring efficacy and caring ability and anxiety?

## **Chapter 2**

### **Review of Related Literature**

The review of related literature is organized as follows: (1) Introduction; (2) Neuman's Systems Model (3) Theoretical foundations of anxiety, caring ability and caring efficacy; (4) Theoretical foundations of collaborative learning; (5) Summary of the related literature.

#### **Introduction.**

Several frameworks in this study support the significance of exploring interventional strategies to lessen beginning student anxiety. The Neuman Systems Model (Neuman & Fawcett, 2002) in nursing explores the stress on the student's system (as client) "in relation to environmental stressors and reaction to stressors" (Benner & Fawcett, 2000, p. 195). Lev Vygotsky's zone of proximal development (ZPD) theory and collaborative learning through social constructivism provides the theoretical framework used to structure the pairing intervention used in this study. Realizing that being a student and eventually a member of a profession is not an isolated activity, social constructivism theory adds to this framework for the use of the intervention of pairing used this research study. Nel Noddings' caring theory is referenced to provide focus for the concept that knowledge develops socially first and then at an individual level through caring relationships. Jean Watson's caring theories in education and nursing, respectively, provide an additional theoretical basis for this study when exploring the concept of caring and various interventions to allow learning to care happen.

#### **Neuman's System Model**

Nursing theory is an attempt to explain patterns and relationships found in various nursing phenomena by providing structure and order for guiding practice, teaching and

learning, and research (Sitzman & Eichelberger, 2004). Neuman's Systems Model, which guides this inquiry, builds upon the following four concepts of client, environment, health, and nursing.

1. Client: Neuman sees "client" as the person, family, group or community viewed as individual or system that is a composite of five interacting variables in various degrees of development. These variables include physiologic, psychologic, sociocultural, developmental, and spiritual components. For this study, the "client" was the beginning- nursing student.
2. Environment: This includes all internal and external factors or influences that surround the client or client system. For purposes of this study, the caring efficacy scores, and then the anxiety and caring ability scores represent the internal environment. The external environment is the clinical setting where the student is either paired or not for clinical learning experiences.
3. Health: This concept describes a continuum with wellness (or optimal system stability or best possible state of wellness) on one end of the continuum and illness (which is the opposite) on the other. Anxiety is an interruption in the wellness continuum of the student.
4. Nursing: The major concern of nursing is to keep the client system stable through accurately assessing the actual and potential effects of stressors and providing interventions that provide the highest degrees of wellness possible at the time. That was the purpose of this study.

Neuman believes each person comes with basic, dynamic resources that maintain the

well-being of that person including physiological responses resulting from genetic factors and response patterns formed in response to the environment. Around this basic structure are lines of resistance to keep the person safe and functioning at an optimal level. Beyond these factors is what Neuman calls the “normal line of defense” which is then surrounded by a “flexible line of defense”. This model demonstrates system stability “in relation to environmental stressors imposed on the client” (Neuman & Fawcett, 2002, p. 3). (See Figure 1)

1) The normal line of defense is more closely associated with the maintenance of the basic structure energy resources of the individual, and the flexible line of defense is more closely associated with the external environment.

Figure 1

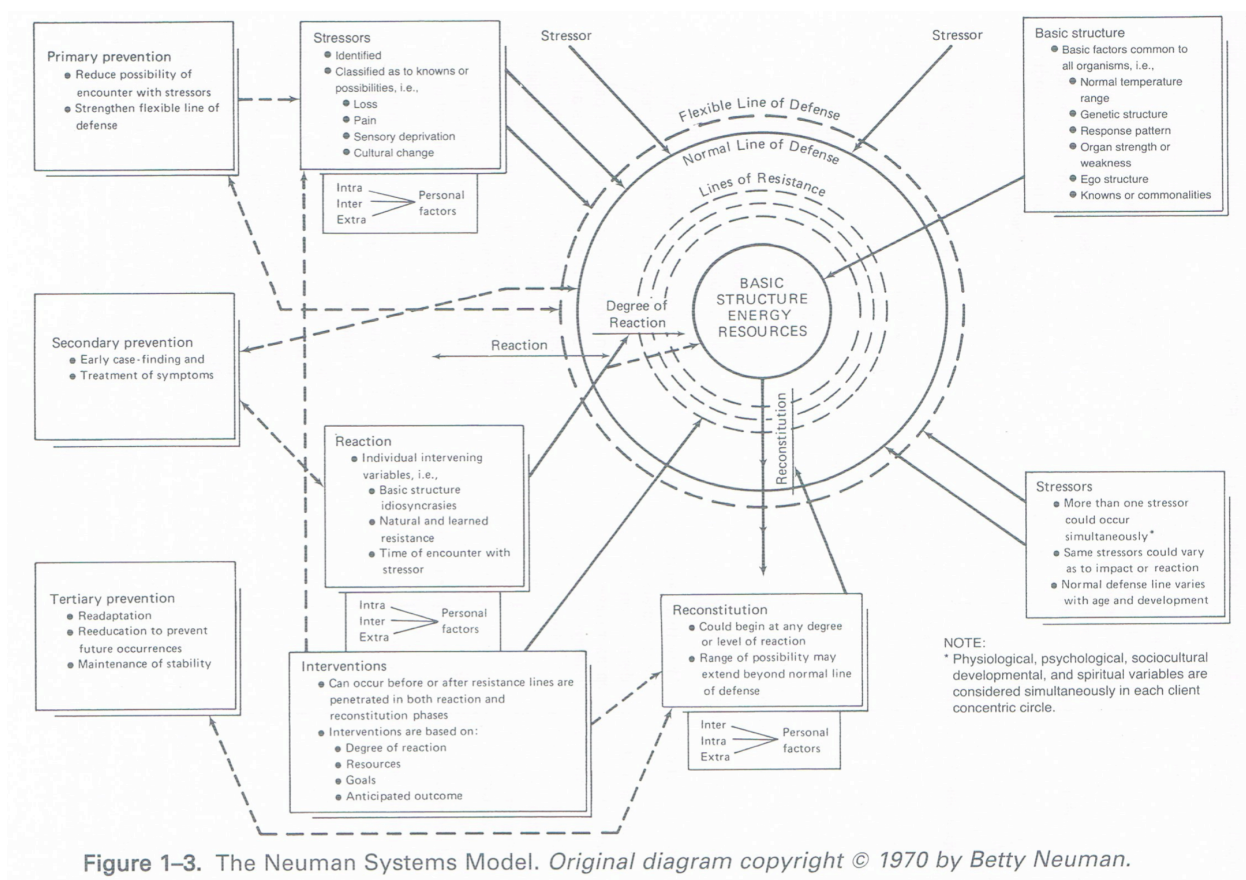
*Neuman's Systems Model*

Figure 1-3. The Neuman Systems Model. Original diagram copyright © 1970 by Betty Neuman.

By using this model, primary prevention activities are initiated that focus on the possibilities of encounters with stressors and then interventions to strengthen the line of defense. Secondary prevention activities occur when symptoms of illness or stress to normal defenses of the client are apparent, and then treatment begins to decrease the ill effects.

Clinical experiences are significant settings for learning. Beginning students perceive these experiences as one of the greatest stressors they encounter in their schooling (Moscaritolo, 2009). Stressors can have a positive or negative outcome effect, and according to Gestalt theory, any stressor has some potential effect on the client's reaction to all other stressors (Neuman & Fawcett, 2002). A created environment that focuses on identifiable factors causing the stress that may disrupt the coping system may help relieve some of the stress (p. 21). Using Neuman's model, it is possible to explore stressors systematically and measure results of an intentional intervention.

### **Theoretical foundation of anxiety**

Anxiety is described as having cognitive, somatic, emotional, and behavioral components (Seligman, Walker & Rosenhan, 2001) and is identified as a barrier to effective learning (Hughes, 2005; Sharif & Masoumi, 2005). Stress and anxiety are sometimes used interchangeably, but stress is commonly understood as: a) a stimulus such as a critical event (e.g., a "stressor"); b) a response to the perceived event; and c) a transactional encounter between a person and a situation (Schwarzer, 1997). For this study, the critical event for the novice student was entering the clinical setting to provide care for a patient and this event was conceptualized as the cause of the anxiety.

The social environment is important to learning, but the internal, individual environment is equally important. The limbic system, which regulates emotion, has an

important role in processing memory, and contains a powerful “recall” feature that allows recollection of specific emotional states and events in somewhat the same form they were when entered into memory (Sylwester, 1994). The emotional context we wish the student to use later in their schooling and in practice guides the construction of learning opportunities for students. This is the theory behind simulation experiences in nursing education (Jeffries, 2005). There is an emotional aspect of behavior and memory, and even short-term stress-related elevation of cortisol, a powerful stress hormone, can prevent distinction between important and unimportant elements of events (Sylwester, 1994, p. 62). The beginning student is already at a disadvantage without experience to differentiate important from non-important information to be processed (Billings & Halstead, 2009). This distinction is important when planning for student assignments and construction of learning opportunities.

According to the Yerkes Dodson law, a certain amount of arousal or anxiety is a motivator of change (which can be called “learning”) but too much will work against the learner (Gibbons, Dempster, & Moutray, 2007) because of excessive production of exogenous stress hormones such as glucocorticoids, a mimic of a hormone produced in the adrenal cortex. A balance must be achieved to help the learner become involved in the learning process and lose the self-consciousness of the fear of failure in the immediate environment (Lupien et. al., 2007).

The presence of anxiety in beginning students is well documented in the literature (Admi, 1997; Beck et. al., 1997; Kleehammer et al., 1990; Lindop, 1999; Mahat, 1998; Moscaritolo, 2009; Oermann & Standfest, 1997; Sharif & Masoumi, 2005; Shipton, 2002; Wilson, 1994; Wilson, 1995; Windsor, 1987). The initial clinical experience has been identified as the most stressful and plays a part in the professional socialization process of the

student (Admi, 1997; Kleehammer et al., 1990). Therefore, this experience must be constructed with care while considering antecedents and contributing factors and then, most importantly, interventions that may help reduce anxiety experienced by the beginning student.

### **Theoretical foundation of caring**

#### **Caring ability.**

As the demands of society change in the complex healthcare arena, the accrediting bodies focus on, and demand that schools meet societal needs, including needs as defined by the nursing profession. One of the most identified needs of society today from the nurse is that of caring. Many scales are used to assess the patient/consumer perception of the quality of care in the health care system, and all include a measure of caring. One research study indicated that even one event perceived as uncaring by the consumer could cloud the whole healthcare experience into a negative frame (Wolf et. al., 1998). With choice being such an important concept of healthcare today, development and demonstration of caring behaviors is more important than ever.

Caring is described in the literature as ‘being with’ the patient as well as performing tasks or “doing for” (Lea, Watson, & Dreary, 1998). Leininger (1991) declared “care is the essence of nursing and the central, dominant, and unifying focus of nursing” (Sadler, 2005; Thomas, Finch, Schoenhofer, & Green, 2005). Nursing is a “carative” profession in contrast to the medical profession that is perceived as a “curative” practice (Watson, 2009). If caring does not occur, then actualization of the one cared for (such as patient or the student or one’s self) may not happen. Watson writes of the need for research and measurement approaches in nursing to ensure this distinction as a carative discipline and thereby allowing nursing to fulfill “its global covenant to its public” of caring (p. 11).



Empirical studies show that nurses recognize and consider the caring needs of patients on the basis of the prevailing caring culture (Watson, 2009). This alludes to the need for nursing curriculum to provide a caring learning environment in a culture that purports and exalts “caring” as its central theme. Nel Noddings (2005, 2002) has done extensive research on providing a caring environment related to educational goals that enhance the ability to learn. She argues that care is basic in human life and that all people want to be cared for, including the time spent in the educational system. She builds on the concept of caring as the basis for moral action (Smith, 2004). She also speaks of caring as a “social policy” and this fits with nursing at this time of reconceptualization of nursing curriculum to one of caring, social responsibility and political action (Diekelmann, 2003).

The behavioristic model used since the 1950s for nurse education is thought to be more suitable for industrial training than to provide for a socially embedded educative experience of caring as it pertains to nursing (Bevis & Watson, 2000; Diekelmann, 2003). With little regard to the feelings, thoughts, and emotional experiences of the student, the perpetuation of the behavioristic model does not demonstrate the caring behaviors we wish to see in the developing nurse.

There is a movement to reconceptualize nursing education to that of a caring curriculum model that represents the moral ideal and central essential core of nursing (Bevis, 1989). As the nursing profession continues to struggle with a universal definition of “caring”, nursing education must participate in the explicit identification and practice of caring characteristics in order to provide an environment that will allow recognition and implementation via modeling of those behaviors associated with caring to occur. The academic setting should model the “cared for” behaviors mentioned in the works of Jean

Watson and Nel Noddings to better provide care for others within the constructed, caring environment.

Noddings builds on the concept of caring and reciprocity (Smith, 2004). The underpinnings of this paradigm focus on the ability of both parties involved in the caring process to learn and gain from the experience. Nurse educators want students to learn how to demonstrate, refine, and practice caring behaviors. Therefore, caring behavior must be modeled because caring among peers is where this essential quality begins and is nurtured (Grams, Kosowski & Wilson, 1997; Khademian & Vizesfar, 2007). Pairing of students provides a network of visible caring for the beginning student by acknowledging and providing peer support during a time of great anxiety for all parties.

As technology replaces observations and assessments once done by the nurse, the intimate focus of the nurse-patient interaction has the potential of being lost. Caring is demonstrated through our actions (Libster, 2001). More demands on the nurse away from the patient and less time for the interactions that once were the center stage of the nurse/patient interaction are creating differing perceptions of the nurses' presence or caring. Public expectation consists of both mastery of the tasks or skill sets to provide care (such as inserting indwelling catheters, dressing changes, identifying changing conditions, and others) but also include what Watson (2009) calls "an elusive, nonmeasureable, existential human relational phenomenon" (p. 3) known as "caring." The emphasis in this definition is on the relational aspect of the exchange.

Caring is synonymous with nursing and is described as the "essence of professional nursing" (Sadler, 2003). Therefore active participation in the development of caring and the

behaviors associated with this is essential. Jean Watson's theory of caring is based on ten carative factors (Tomey & Alligood, 1998). They are:

1. Formation of a humanistic-altruistic system of values.
2. Instillation of faith-hope.
3. Cultivation of sensitivity to one's self and to others.
4. Development of a helping-trust relationship.
5. Promotion and acceptance of the expression of positive and negative feelings.
6. Systematic use of the scientific problem-solving method for decision-making.
7. Promotion of interpersonal teaching-learning.
8. Provision for a supportive, protective, or corrective mental, physical, sociocultural, and spiritual environment.
9. Assistance with the gratification of human needs.
10. Allowance for existential-phenomenological forces. (Marriner-Tomey, 1989, p. 167-168)

One of the major assumptions of her work is that caring can only be effectively demonstrated and practiced interpersonally, which fits nicely with Vygotsky's social learning theory and with the Caring Ability Inventory, which measures caring behaviors especially within a relationship (Nkongho, Watson, 2009).

**Caring efficacy.**

The theory of caring efficacy based upon Bandura's concept of self-efficacy, is the belief that one is capable of certain actions or effects to achieve defined goals or perform required tasks. Bandura's model states there are processes by which these effects are produced and selected by individuals and include cognitive, motivational, affective, and selection states. Self-efficacy is concerned with people's belief in their capabilities to exercise control over these processes through seeing others similar to oneself managing these tasks. It is inferred in given situations that one has the capabilities to succeed due to social persuasion, as well as somatic and emotional states, as a part of efficacy (Bandura, 1994).

For the purposes of this study, the definition of caring efficacy is the perception of the student as to their caring competency and ability to establish a relationship with patients in their care. According to Sadler (2003), students conceptualized caring efficacy as "self-reported caring competency" and identified the greatest influencing factor as family modeling first, and then the nursing curriculum. Beck (2001) conducted a meta-synthesis of qualitative studies of caring in nursing education and found only 14 studies on caring were conducted between 1974 and 1998. From this work, Beck identified that caring behaviors were influenced by faculty interactions and then faculty-student interactions and then to student-patient interactions (Sadler, 2003). Coates' caring efficacy scale (CES) attempts to measure a person's self-rated ability to establish and develop caring relationships (Coates, 1997).

**Theoretical foundation of collaborative learning**

Collaborative learning is described in the literature as a sound pedagogical principle, resulting in gains of self-confidence of students, independence, role modeling, and appreciation of others' strengths. Students are able to see each other as learning resources

rather than competitors (Iwasiw & Goldenberg, 1993). In qualitative studies, peer support has been cited as a factor that decreases stress (Beddoe & Murphy, 2004; Broschius & Saunders, 2001; Gibbons, Dempster & Moutray, 2007).

An essential part of the approach used in this study is that participants engage in forms of interaction that are beyond their competence when acting alone. Using Vygotsky's theory of "Zone of Proximal Development" (ZPD), the theory is clinical knowledge is being built upon interactions between peers and instructors who are presenting to an educational situation with different levels of "knowing". Each student brings an ontological stance and this is the "greater knowledge" to be acquired when working with each other, directed by the instructor. Practicing and establishing collaborative techniques vital to the nursing profession accomplish cooperative learning. This setting may facilitate learning in general by producing a synergy of minds coming to bear on a common situation or goal (Smith & MacGregor, 1992).

Vygotsky's main ideas also include the development of cognitive processes including language, thought, and reasoning through social interaction into the prevailing culture. Others with great influence in this process include instructors, nurses working with the students who are seen by the students as experts, and peers, who come with differing levels of competence and knowing. Vygotsky's theory focuses on learning as occurring in a community of learners as opposed to only individualized learning (Kozulin et. al, 2003). Bandura's theory of self-efficacy is situated within this framework of social learning. When learning occurs from direct experience, it is a result of observing others' behaviors and then assessing what consequence will then exist for the individual (Iwasiw & Goldenberg, 1992; Johnson et. al., 1998).

By purposefully constructing a “Zone of Proximal development ” using peers, instructors and nurses serving as role models, the student may accomplish greater learning where independent performance is inadequate. Pairing students for their initial clinical experiences builds on this principle as well as the caring principle of nursing (in relationship). Recognizing that the student arrives immersed within their own culture, nursing educators then enmesh them in the culture of nursing, and both are recognized and supported as part of a “caring curriculum” that builds upon these existing communities.

The task of integrating the student into the culture of nursing while in the learner role and building upon the networking potential and needs of the profession are of great importance. When the instructor provides an environment for social and peer interaction, scaffolding occurs and results in greater learning. There is the culture in which the student arrives and the culture of nursing to which they must be integrated and the pairing model provides integration into both these cultures..

### **Summary**

Anxiety in beginning students during their initial clinical experience is evident as observed by faculty who teach students at this level of instruction. Description of beginning student anxiety is abundant in the literature but its effect on the students’ ability to know and provide care is minimal. Stressors can have positive and negative outcome effects. Therefore, the goal of this study is to explore the relationship between the nursing student during their beginning clinical experiences, the resulting anxiety during these experiences for the student, and their ability to care for patients

With the physiological response to anxiety paradigm in mind, Neuman’s System model is a template for constructing a safe environment in which students can develop

meaning for their practice as competent, caring and compassionate providers of care in the role of the professional, registered nurse (RN) (Billings & Halstead, 2009). By pairing students for their beginning experiences, the student (client) is seen as a physiological being with physiological reactions to stress and anxiety, and as a wholistic being with psychological, sociocultural, developmental, and spiritual needs (Neuman, 1995) to be acknowledged and addressed before optimal learning can occur to the role of the nurse.

With limited time and resources to provide students with the knowledge, skills, and attitudes needed to become caring professionals in nursing, a caring curriculum built upon existing theory was constructed for this study and will contribute to the current body of clinical research with beginning students as it relates to anxiety and caring.

The literature addresses the relationship between anxiety and learning yet its impact on learning to care has not been presented. The literature addresses anxiety in the beginning student, yet interventions that seek ways to lessen anxiety for the student has not been adequately explored. A conceptual relationship is being proposed between anxiety and caring, and is explored through the quantitative data and follow-up qualitative data results of this study.

Previous research provides a foundation for exploration of this intervention and contributes further insight to the current body of research concerning anxiety for the beginning students and its effect on learning to care as a nurse. If caring is a concept to be learned, then caring efficacy is a part of the concept of caring ability. Relationships, caring competencies, and external influence of the curriculum in the setting in which caring exchanges occur, all influence the students' perception of care and caring ability. Nodding describes this phenomenon as this: "Without imposing my values on an other, I must realize

that my treatment of him may deeply affect the ways he behaves in the world. Although no individual can escape responsibility for his own actions, neither can the community that produced him escape its part in making him what he has become” (Noddings, 2005, paragraph 3).



## CHAPTER 3

### Methods

The methods section is categorized into the following sections (Research Design, Quantitative, Instruments; Qualitative; and Summary). The sections are arranged as follows:

Quantitative: 1) Quantitative Research Hypotheses, Research Design, Population and Sample, Procedures, Specification of Variables, and Quantitative Data Analyses; (2)

Instruments: State Trait Anxiety Inventory (STAI), description and scoring, reliability and validity; Caring Ability Inventory (CAI), description and scoring, reliability and validity;

Caring Efficacy Scale (CES), description and scoring, reliability and validity; Qualitative: (1) Qualitative inquiries, Design, Sample, Procedures and Data Analysis Summary; Summary.

#### **Quantitative Research Hypotheses.**

1. Does pairing students for their initial clinical experience lower the anxiety experienced during beginning clinical-care experiences and improve caring efficacy and caring ability scores of the student over time?
2. Does caring efficacy have an effect on anxiety and caring ability scores?

#### **Research Design**

Using a convenience sample of beginning nursing students, an experimental mixed model repeated measures research design was used to measure multiple variables in this study. The independent variable consisted of an intervention of pairing students for their beginning clinical experiences. Three scales served as the repeated measures. The State Trait Anxiety Inventory Scale (STAI), Caring Ability Inventory (CAI), and Caring Efficacy Scale (CES) were administered before nursing students entered the clinical setting (week 0, Time 1), at week 5 (Time 2), before switching sites of clinical settings from long-term rehabilitation

settings to acute care or acute care to long-term rehabilitation setting) and at 10 weeks (Time 3), after all clinical learning experiences were completed. The STAI and the CAI were utilized to collect data on the students' reported anxiety and ability to care and provide care, respectively. The CES measures the students' reported ability to establish a caring relationship with patients. Descriptive statistics were used to describe the distribution of data prior to analysis (Green & Salkind, 2008).

Three repeated-measures analysis of variance tests were used to test the hypotheses of the mean differences in a within subjects design for anxiety, caring ability and caring efficacy, and to compare group differences on the changes over time. Repeated measures designs are well suited for analysis of longitudinal designs and for experimental studies with between subject factors (Hertzog & Rovine, 1985; Seago, Williamson, & Atwood, 2006). An alpha level of .05 was utilized to determine the significance of the results.

Regression analysis was used to test whether caring efficacy predicts anxiety and caring ability scores over time for research question two.

Finally, a qualitative approach explores the findings of the quantitative study and research question 1a (Creswell, 2009; Greene, 2007). A focus group method explores students' feelings about their clinical experiences.

### **Description of the Population and Sample.**

#### ***Description of Nursing Student Population in the United States.***

According to information compiled by the National League for Nurses (NLN), in 2008-2009, seventy percent of all baccalaureate of science nursing (BSN) students were age 25 years or under, 16% were age 26 years to 30 years, 10% were age 31 years to 40 years, and 4% age 41 and over. Approximately 28% of baccalaureate students in nursing identify

themselves as either African-American, Hispanic, Asian or Pacific Islander, or American Indian or Alaskan Native (in order of percentage of reported enrollment for 2008-2009, NLN) when questioned about race-ethnicity. Men comprised 12% of enrollment totals in the same time period.

There is a disparity in the representation of various races in nursing and in the nursing student population. Caucasians are by far the most represented (71% of enrollment in 2008-2009), followed by African American (13.6% of BSN students), Hispanic (5.2%), Asian or Pacific Islander (5.7%) and American Indian or Alaskan Native (0.9%) (NLN, 2009) (see Appendix G).

***Description of a Midwest University Nursing Student Population and Sample.***

There were 161 students enrolled at University B in the spring of 2010 where the study was conducted. The average age of the student was 25.9 years with ages ranging from 19 years to 54 years. Forty three percent of students were 22 years or younger. In previous semesters, 43, 48, and 59 percent of the students were under 22 years of age (respectively) when beginning the program. Eighty-six percent of the students are female and 14%, male. The male percentage was higher during the semester of study than any time in the past four semesters, which was 5%, 12%, and 8%, respectively. There were no African Americans in this class, one Hispanic student, and two Asian students. For the past 5 years, the ethnic make up of the Baker nursing student population has been 88% Caucasian, 4% African American, 1% Asian, Hispanic and Native American, each and 5% identified as “other” (BUSN Student Profile, 2010).

The number of students beginning the semester was higher than average (40, 42, and 39 respectively before) with spring 2010 at 49 students accepted, and 47 began the

coursework. Students who participated in this study will graduate after they complete coursework for both theory and clinical requirements during the last 2 years of their degree completion.

The nursing students attend classes exclusively at a satellite campus for nursing degree completion. Prerequisites to the program are completed at other physical institution locations, and for this class, 53% of student completed them at a four-year institution and 47% completed prerequisites at a community college. The students participating in this study are assumed representative of those entering baccalaureate of science in nursing degree programs.

This school of nursing (SON) affiliates with a large, metropolitan hospital and healthcare network. Students enrolled in this baccalaureate of science nursing (BSN) program enter the patient care setting after spending five weeks in a skills learning lab at the school where this study took place. This skills lab setting includes theory and application of basic nursing skills such as bathing, transferring patients, providing and supporting use of assistive devices, inserting and discontinuing indwelling urinary catheters, nasogastric intubation, placing sequential compression devices to decrease the incidence of deep vein thrombosis, and other preventative care measures. Communication skills and documentation skills are also taught and practiced during this initial five weeks during the theory portion of the course before the student is expected to provide hands on care for a patient. There are no official “requirements” mandated for beginning clinical instruction for the nursing student but this is the method used at this institution. Simulation lab enhances the students’ learning opportunities as well. The students perform selected skills for an instructor on mannequins, and are given a pass/fail grade. There are many opportunities for students to meet with the lab coordinator to practice these skills if the student feels they need the additional practice

times. Instructors post available lab times, and students can make appointments according to that schedule, or their times, as needed. The student must pass skills competency performance standards to be able to attend clinical learning experiences.

In Kansas the maximum number of students that are permitted per clinical group instruction to one faculty member is 10 (Kansas State Board of Nursing, 2010), and generally there are 8 – 10 students per group (Billings & Halstead, 2009). The Kansas State Board of Nursing mandates that there should be three times the number of hours of clinical instruction provided for the nursing student for each college credit awarded, and the number of required hours varies from state to state. Clinical instruction during this study consisted of one nine-hour day for 10 weeks (or a total of three college hours).

The week before the students entered the clinical setting, they were introduced to the concept of caring as presented using various nursing theories that this school espouses. This includes Doretha Orem's Self Care Deficit Theory and Neuman's system model. Orem's theory, in simple terms, is the belief that nurses provide care for patients when they cannot provide care for themselves. Neuman's model, as previously discussed, is based on the individual's relationship to stress, their reaction to the stress, and the reconstitution factors available to the individual to deal with that stress. Watson and her theory of human and transpersonal caring is also explored during this presentation, and is used as the model at the healthcare institution where students practice in their clinical learning environment. All students received the same content at the same time.

Students at this institution were then assigned to either a long-term care or rehabilitation setting (which is considered to be caring for non-acute needs patients) or an acute care, in-hospital setting for their clinical learning experiences. The students participated

in this experience in a clinical group of 7-9 students at each setting for 5 weeks. Included during these five weeks was one day of orientation to the unit, then 4 days of care experiences as assigned by the clinical instructor at the various sites. The student then returned to the skills lab for one week, and rotated experiences, remaining in the same assigned group but with a different instructor at the alternate site.

### **Procedures.**

Internal Review Board approval for the protection of human subjects was obtained from the University of Kansas and University B (see Appendix A). There was a meeting with the other clinical instructors regarding the study. The purpose of the study and the hypotheses were presented.

Instructor responsibilities in the process were outlined and included assigning one student to one patient in the non-paired group, and two students to one patient in the paired group for each of the 10 clinical experiences. The student(s) would then work with an assigned patient and provide cares for that patient in a constructed learning opportunity (clinical learning) to connect theory and care in the various settings. There were three clinical instructors other than myself that helped oversee 6 total clinical groups in the two settings. Instructors were all graduates of the program where the study was conducted (except for this researcher).

Instructors were advised that they would be interviewed after completion of the study to explore their perceptions of the student anxiety and caring abilities exhibited during the study. One instructor oversaw learning experiences for paired students and non-paired students, and was interviewed as to how anxiety and caring were perceived by her.

*Sample selection.*

A convenience sample of beginning nursing students where this researcher teaches were asked to participate in this study on a strictly voluntary basis. Each student received an information sheet (see Appendix B) that assured them of the confidentiality of their responses. Students were then randomly assigned either to a group that was not paired for their initial clinical experiences (the control group) or a group that was paired for their clinical experiences (the experimental group). All students chose to participate (n=47), and there was no penalty for declining to participate. One student dropped from the program and re-entered in the paired group later, and was not included in the study (n=46). Students were randomly assigned to a clinical group of students who were paired for individual patient cares or to a group of students who were providing patient cares individually.

Disclosure regarding this research occurred before the beginning of the clinical experiences during theory coursework, and during orientation of the students by the researcher. The benefits of participating in this research were explained as potentially improving learning opportunities for nursing students when learning to care for patients. It was also explained that there would be a contribution of knowledge to nursing in the preparation of future nurses. Information regarding the risks, were explained as “none or minimal”, as nursing students everywhere participate in various types of clinical experiences to meet requirements of becoming registered nurses (Billings & Halstead, 2009) and the proposed interventions in the care models used were within those model standards. One student-one patient models are a much more common type of clinical learning intervention than the paired students for one patient model that is the experimental intervention in this

study, as evidenced by the lack of literature describing pairing of the same level of peers for clinical experiences.

***Reliability and validity.***

To establish reliability of this study: 1) A meeting of all clinical instructors was arranged to discuss the study and the data collection tools to be used and instructor responsibilities in the clinical learning setting; 2) Students were introduced to the study in the theory course and gave consent at that time by filling out the questionnaires; 3) a test-retest measurement was conducted at the 3 times the tools were administered.

To assure validity: 1) There was random selection assignment to either the non-paired or paired students group. 2) Instruction was provided for the State-Trait Inventory tool as per the instructions provided by Mind-Garden, the “owner” of the tool to all students at the same time. All participating students had just completed a theory lecture in the “Concepts of Nursing” coursework on “caring” and what that means as a nurse.

An introductory information session regarding this study during orientation day to the students’ first clinical rotation was provided. At that time, students were informed that they would be awarded an additional 1% to their final (passing) grade for filling out three different questionnaires during scheduled class time and either being assigned to a clinical setting where they would be paired or not paired when providing care(s) for their patient during beginning experiences in the clinical learning setting. They were also assured of the opportunity to receive the 1% extra added to their grade whether they participated in the study or not via an alternative assignment. All students chose to participate except for one who had agreed to participate, withdrew from the program and then re-entered in the paired group. This student was given an assignment of equal time commitment during the data collection



phase, and was awarded the one percent as well. Participation in this study resulted in two of the students' grades (4%) advancing from a "B" in theory to an "A" with a grading scale of 93% as the bottom tier of the A category.

In order to ensure the protection of students, participation was to be terminated without consent if for any reason the clinical experience instructors believed that the procedures posed any negative consequences to the individual student's well being. No participation was terminated.

Students, on average, required approximately 30 minutes of the 45 minutes of class time allotted for completion of the data collection tools. Data gathered from this study is stored on a hard drive on a personal computer that is password protected, and the hard copies of the data are stored in a locked file cabinet that belongs to the researcher. Any identifying information has been removed to maintain the anonymity of the individual results. All participation was strictly voluntary. This researcher did not believe that this study posed any negative consequences to the students' well being or their academic performance. Student personal identity remains anonymous in the event of any publication regarding this study.

#### ***Data Collection Procedures.***

Students completed a demographic information form (see Appendix B) at the initial surveying point, time 1 (at 0 weeks, before entering the clinical learning environment). They were also instructed to complete the State-Trait Anxiety Inventory (STAI) for adults entitled "Self-Evaluation Questionnaire STAI Form Y-1" and "Self-Evaluation Questionnaire STAI Form Y-2". As per instructions in the *State-Trait Anxiety Inventory for Adults Sampler Set* (2009), the students were instructed to report how they feel "right now" for the State-Anxiety (S-Anxiety) form, and how they "generally" feel when filling out the Trait-Anxiety (T-

Anxiety) form (p. 9). Both sets of specific instructions were printed on the forms, and again, were emphasized verbally.

The term “anxiety” was never used overtly, but rather the question as to how the students were “feeling” at the time was used. As per the “Administration” instructions (p. 9), the STAI was referred to as “the Self-Evaluation Questionnaire”. Data from the “state” anxiety questionnaire was collected at all 3 time intervals, and the trait anxiety data was collected at Time 1 and Time 3 only.

The instructions with the STAI also speak to developing a “trusting” relationship to allow students to accurately describe what they are feeling. Persons may actually “under-report” their anxiety in an effort to look better to an instructor or examiner (Spielberger, 1983). Again, I asked for honest and sincere responses. Students were directed to the instructions on their test form at each collection point.

The Caring Efficacy Scale and the Caring Ability Scale were administered at all three time intervals which the same instruction to complete the form as to how they were feeling “now”.

### **Specification of variables**

The independent variable, hypothesized to be directly responsible for the variability in the individual dependent variables, was an experimental intervention, specifically whether or not the nursing students were paired or not paired during their initial clinical learning experiences. The students were randomly assigned into two equally sized groups ( $n = 23$ ) for this purpose.

There were five demographic variables describing the ages, genders, professional experiences (type and length) and educational qualifications of (degrees) of the sample of  $N =$

46 students drawn from the target population of beginning nursing students undergoing their initial clinical experiences (Table 1). The dependent variables or main outcomes of the study was a repeated measure of the level of State Anxiety of the students, Caring Ability, and Caring Efficacy measured after 0, 5, and 10 weeks of clinical experience using the State-Trait Anxiety Inventory (STAI), Caring Ability Inventory (CAI), and Caring Efficacy Scale (CES). The extraneous variables (which may or may not be directly or indirectly related to the variability in the dependent variables) were repeated measures of Trait anxiety measured using the STAI at Time 1 and Time 3.

Table 1

*Specification of variables*

Operational level	Variable name	Measurement level	Measures
Demographic	Age	Scale	Years
	Gender	Nominal	1 = Female 2 = Male
	Type of experience	Nominal	0 = No previous experience 1 = CNA 2 = CNA & CMA 3 = PCT 4 = Pharmacy tech 5 = Other
	Length of experience	Nominal	1 = None 2 < 1 year 3 = 1- 3 years 4 = Title with no experience 5 = Unknown
	Educational qualifications	Nominal	1 = Associates degree 2 = Bachelors degree 3 = Masters degree 4 = Other degree 5 = No degree
Independent	Intervention	Nominal	1 = Not paired 2 = Paired
Dependent	State Anxiety	Scale	1 = 0 weeks (Before clinical) 2 = 5 weeks (Before switching clinical groups) 3 = 10 weeks (After clinical)
	Caring Ability	Scale	1 = 0 weeks (Before clinical) 2 = 5 weeks (Before switching clinical groups) 3 = 10 weeks (After clinical)
	Caring Efficacy	Scale	1 = 0 weeks (Before clinical) 2 = 5 weeks (Before Switching clinical groups) 3 = 10 weeks (After clinical)
Extraneous	Trait Anxiety	Scale	1 = 0 weeks (Before clinical) 2 = 10 weeks (After clinical)

**Quantitative Data Analyses**

When testing the hypotheses, the following statistical techniques were used with the Statistical Package for the Social Sciences (SPSS) PASW Statistics 18.0 Release 18.0.0 computer program for Mac OS 10. Prior to the analysis, data from the STAI, CES, and CAI responses were computed to aggregate form, and labeled as “1, 2, and 3”, respectively. The means of the scores from the responses of all participants on all measures were calculated and entered as these aggregate data. All assessments were completed and entered into the database except for one Trait Anxiety Scale that was not filled out at time 2. The mean was used for each of the missing values on this instrument for the one student at data collection time 2, Trait Anxiety Scale (Hancock & Mueller, 2010). The respondents completed all other information and scoring tool values were entered, using the reverse scoring described in the instruments section.

**Data Analysis Procedure.**

Hypothesis One: Pairing students for their initial clinical experiences will lower the anxiety experienced during beginning clinical-care experiences and improve caring efficacy and caring ability scores of the student over time.

Descriptive statistics describe the data before analysis (Salkind & Green, 2004). Three repeated-measures analysis of variance test the hypotheses of the mean differences in a within subjects design for anxiety, caring ability and caring efficacy, and to compare group differences on the changes over time.

The variables of interest are student anxiety as measured by the State Trait Anxiety Inventory tool (STAI), the caring ability perceived by the student as measured by the Caring

Ability Inventory (CAI) and caring efficacy perceived by the student as measured by the Caring Efficacy Scale (CES).

A repeated measures ANOVA was performed using SPSS using the procedure described by Field (2009). The General Linear Model – Repeated Measures... option was selected. The dialog box calls the dependent variable the “Within-Subject Factor” referring to the repeated measures of the State Anxiety scores (Caring Ability, and Caring Efficacy) located in three separate columns of the data editor for the three dependent variables. A Within-Subject Factor Name (“Anxiety”, “Caring\_Ability” and “Caring\_Efficacy”) and the Number of Levels: (3) was entered. The variable names for the three repeated measures labeled in the SPSS data editor (State Anxiety 1, State Anxiety 2, and State Anxiety 3, and the other labels were entered with terms and numbering, as above) as “Within-Subjects variables”. The independent variable (“Intervention”) was entered as “Between-subjects factors:”. The same procedure was repeated for each of the variables. The options to compute “Descriptive statistics”, “Estimates of effect size” and “Homogeneity tests” were selected.

The Pearson’s Product Moment correlation coefficient was performed to assess associations between the variables. The correlation effects size ( $r$ ) was calculated for Pearson’s Product Moment correlation, and a small effect size was .10, a medium was .25, and a large was .5. An alpha level of .05 was used to determine significance of the correlations.

Hypothesis two: Caring efficacy scores will predict anxiety and caring ability scores.

A regression analysis was performed to explore the relationship between caring efficacy and anxiety and caring ability of the student.

**Assumptions.**

The repeated measures research design used in this study was based on six underlying assumptions (Fraenkel & Wallen, 2007) as follows: (a) the two groups were approximately equivalent in terms of their demographic characteristics; (b) there was no Hawthorne effect, i.e. that exposure to the intervention did not alert the students in the paired group to believe that they were under a strong obligation to react differently (e.g., to experience less anxiety or demonstrate caring more readily) than the students in the unpaired group; (c) there was no instrument implementation threat, referring to difficulties associated with the ways that the instruments were administered; (d) there was no history effect, i.e. no extraneous events occurred during the study other than the intervention; (e) there were no threats to validity or reliability due to the inability of the instruments to accurately and consistently measure the constructs that they were designed to measure; and (f) the relationship between the dependent variable and the independent variable was not confounded by one or more extraneous variables or covariates, so that that the intervention was the only variable directly influencing the repeated measures.

The use of analysis of variance was based on the following assumptions: (a) the populations from which the populations were obtained must be normally or approximately normally distributed; (b) samples must be independent; (c) variances of the populations must be equal; (d) group must have the same sample size (Keppel & Wickens, 2004).

***Equivalent characteristics of the two groups.***

The research design assumes that the members of the two groups of students are equivalent with respect to their sample sizes and demographic characteristics. Equal sample

sizes are not essential, but are beneficial, because they increase the power of statistical tests (Tabachnik & Fidell, 2007). For this study, the sample sizes were equal ( $n=23$ ).

The assumption of equivalent frequency distributions of age, gender, professional experience, educational level, and Trait Anxiety amongst the two groups was tested using non-parametric Kolmogorov-Smirnov two sample tests (Fields, 2009). The null hypothesis of each test was that there was no difference between the frequency distributions of the personal characteristics in the paired group and the non-paired group. The decision rule was to reject the null hypothesis if  $p < .05$  for the Kolmogorov-Smirnov test statistic.

#### ***Hawthorne effect.***

Exposure to an experimental intervention should not alert the subjects to feel that they are obliged to perform differently to those students not exposed to the intervention. It is important that the students did not feel that pairing or not was superior or more desirable than the other intervention. Otherwise, the measurements may be biased. The term “Hawthorne effect” the description of any short-term reactivity of subjects to an experimental intervention that would not otherwise happen in the absence of a researcher (Adair, 1984; Jones, 1992). The Hawthorne effect is not easy to measure or control in practice, since it depends upon the personal attitudes of the participants to experimentation, which differ from one person to another. Nevertheless, the possibility of a Hawthorne effect, however small, was a limitation of the research design.

#### ***Implementation and history threats.***

An implementation threat may bias the responses of participants if the instrument(s) being used change(s) over time across the repeated measures. The same instruments were administered repeatedly to the two groups of students therefore implementation was not an



issue. It was also assumed that no significant history effect influenced the results i.e., that no unknown or uncontrolled events occurred during the time period of the study that increased or decreased the levels of state anxiety of the students, other than undergoing their initial clinical experiences. This is very difficult to measure and control for, as different students cope with life events whether school related or not throughout the program in different ways.

***Threats to validity and reliability.***

The developers of the instruments have provided data in the literature confirming the validity and reliability of the State-Trait Anxiety Inventory (STAI), the Caring Efficacy Scale (CES), and the Caring Ability Inventory (CAI) scales used in this study. Nevertheless, levels of State Anxiety are difficult to measure accurately and consistently over time. There was a slight possibility that the responses to the STAI may have reflected the influence of other transient emotions being experienced by the students at the time that they completed the questionnaire other than those directly associated with the experimental intervention (Spielberger et al., 1983), including the trait anxiety of the individual respondents. The timing of the administration of the tools (during orientation to the clinical situation at both Time 1) and Time 2) was purposefully chosen to help associate the perceived emotion of the students with the beginning of new clinical experiences at an alternate location. The follow-up Time 3) data collection was conducted after clinical experiences were completed, but the students had not yet completed their final exams in the theory coursework nor had they received their final grades for the semester. This may have contributed to the anxiety levels at Time 3.

These within subject effects may be a result of respondent fatigue, practice effects, or a change in the meaning of the other variables, and not the effect measured with the data collection tools (Hancock & Mueller, 2010).

### **Instruments**

#### **State Trait Anxiety Inventory.**

The State Trait Anxiety Inventory (STAI) scale was used to measure self-reported anxiety of the novice nursing in the beginning clinical learning experiences. Anxiety states are characterized by subjective feelings of tension, apprehension, nervousness, and worry, resulting in activation or arousal of the autonomic nervous system (ANS) at varying levels to circumstances perceived as threatening (Novy et. al., 1993). The STAI is a tool that has been determined to have good psychometric properties used to assess anxiety states (Spielberger, 1983).

The STAI measures both “state” anxiety and “trait” anxiety in respondents. “State-anxiety” refers to a response to transitory states of anxiety occurring at a given time with a certain level of intensity. “Trait Anxiety” refers to differences in the disposition to respond to stressful situations with varying amounts of state-anxiety influenced by each person’s past experience (Spielberger, 1983, p. 5).

The STAI has been used extensively in research and practice and the test-retest correlations range from .73 to .86 for the T-anxiety scale and greater than .90 for the S-anxiety scale. The stability measured by test-retest coefficients among various groups is relatively high for the T-anxiety scale and low for the S-anxiety scale, which would be expected when measuring changes in anxiety resulting from situational stress. Internal

consistency between both measures is high, being .92 and .90 respectively (Spielberger, 1983).

Research suggests internal consistency and validity is higher in more stressful conditions, ranging from .86 to .94 (Spielberger, 1983, p. 68). The S-anxiety items were least effective in discriminating between the relaxed and normal condition, perhaps reflecting a “floor effect” in the scale.

The responses on the STAI tool ranged from (1) not at all; (2) somewhat; (3) moderately so; (4) almost always. The anxiety absent items for which the scores were reversed on the S-Anxiety and T-Anxiety scales are:

S-Anxiety: 1, 2, 5, 8, 10, 11, 15, 16, 19, 20

T-Anxiety: 21, 23, 26, 27, 30, 33, 34, 36, 39 (p. 12). A sample form is attached.

Only one student failed to indicate a response on the Trait anxiety data collection tool for STAI, and the procedure described in the State-Trait Anxiety Inventory for Adults Sampler Set (1983) was used to obtain a prorated scale. The mean score for the scale items to which the individual failed to respond was obtained, and entered into the responses. This student’s data was in the non-paired group, and it appeared as if the responses had been erased and no other responses were indicated in their place.

### **Caring Ability Inventory.**

The necessity to care and provide care by the nurse is a function of the professional nurses’ role. It is important to assess this ability and identify conditions under which this ability to care changes in relationship to others. The Caring Ability Inventory measures these outcomes and has been supported through factor analysis and other studies using hypothesis testing with results consistent with caring theory and literature (Strickland & Dilorio, 2003).

Nkongho (1990) developed the “Caring Ability Inventory” instrument to measure the ability to “care” when *in* a relationship with others. Her work is an extension of the work of Milton Mayeroff (1971) and the CAI increases understanding of human relationships and identify strengths and weaknesses in order to potentially initiate intervention strategies through measurement. Indicators of caring such as knowing, alternating rhythm, patience, honesty, trust, humility, hope, and courage (Nkongho, 1990) are said to be measured by this tool for the purpose of measuring the degree of a person’s capability to care for others. This construct of caring describes the activity expected of the beginning-nursing student while in the clinical learning setting.

This 37-response tool contains subscales of knowing, courage, and patience that have been previously assessed through Cronbach’s alphas and test-retest after a 2-week period, with the coefficients for each ranging from .64 to .80 ( $N=38$ ). Assessment of the content validity was reported as .80 (Strickland & Dilorio, 2003). The CAI has been used in both academic and clinical settings (Watson, 2009).

This instrument consists of a Likert scale with the scoring ranging from “1” (Strongly Disagree) to (Strongly Agree) at the “7” value. Higher scores indicate greater degree of caring if the item was positively phrased. Scoring was reversed on the negatively phrased items (1, 5, 11, 12, 13, 14, 15, 16, 23, 25, 28, 29, 32). Values during previous research using this tool are assigned to a low, medium, or high levels of “caring ability” in reporting. The students in this study obtained a total score, with items containing negative responses being reverse scored. The higher the score, the greater the student perceived their “caring ability”. (Copy of CAI; see Appendix D).

The subscales were converted to a single score that is qualified by a score  $< 190.29$  as “low” caring ability,  $190.29 - 211.12$ , medium caring ability, and scores  $> 211.12$  are considered to represent “high” caring ability.

### **Caring Efficacy Scale.**

The Caring Efficacy Scale was used to collect data from the student sample. The conceptual basis for this tool is built upon Bandura’s self-efficacy theory (1977) from social psychology theory and Watson’s theory of transpersonal human caring from nursing (Watson, 2009). Literature regarding self-efficacy suggests perceived self-efficacy mediates anxiety arousal and is a predictor of behavioral improvement (Bandura & Adams, 1977).

This 30-item instrument has undergone refinements in order to measure caring attitudes, skill, and behaviors using a six-point Likert scale with a self-report format. Caring efficacy, as defined by Coates (1997), measures the “sense of efficacy [conviction or belief in one’s ability] in *establishing* caring relationships with clients” (Watson, 2009, p. 164) and developing a caring relationship (Sadler, 2003). Scoring ranges from -3 (strongly disagree) to +3 (strongly agree) on the instrument items. The positive and negative items are balanced in this instrument. Items numbered answered with “-3” were coded as “1”, “-2=2”, “-1=3”, “+1=4”, etc., except for items numbered 1, 8, 12, 13, 15, 16, 17, 20, 21, 24, 26, 27, 29, and 30, which were reverse scored with a response of “-3” coded as “6”, “-2=5”, “-1=4” etc. per the author’s instructions.

This form has yielded an alpha of .85 in previous research use (Watson, 2009). It correlates positively in predictable ways with personal accomplishment and negatively with job stress inventory, thus adding to further credibility of the tool (p. 164).

**Qualitative Methods****Qualitative Research Design.**

A qualitative, explorative, descriptive, contextual type of approach was used to explore students' experience via focus group follow-up interviews (Carlson, Kotze & Rooyen, 2003). This component of the study had the goal of better understanding how the grouping of students when providing care affected the students' anxiety before and during their beginning learning experiences. The literature is abundant in describing the anxiety nursing students experience, but not how purposeful interventions affect that anxiety. Interviewing students post-clinical experience allowed exploration of underpinnings to anxiety as it relates to learning to care as understood by the student that were not captured by the data in the quantitative study. This questioning also explored the students' perception of their ability to provide care and establish caring relationships in their assigned settings while caring for the patient.

Focus groups provided both a method to collect and interpret student responses. By assembling large, homogenous groups of 7 – 12 students, a socially oriented, non-threatening and mutually supportive environment may have lead to a broader expression of feelings for interpretation common among the group (Marshall & Rossman, 2006; Morse & Field, 1995).

One of the concerns with using focus groups is the inability to achieve data saturation (Morse & Field, 1995). Although this is of concern, the focus groups were used in this setting to help understand the groups opinions about why the anxiety levels differed, between the two groups. This researcher was interested in exploring the student's opinions of the phenomena within the group and not specifically the culture of the group. By using focus groups, I was

able to interview a larger number of participants as opposed to the in-depth, one-on-one interviews used in other methods of qualitative inquiry.

Another concern of focus groups is the issue of power dynamics (Marshall & Rossman, 2006). All students were requested to respect the right of the other students to speak concerning the questions. One limitation was however, keeping the topic relevant. Being an instructor in the course provided opportunity for students to bring up issues that were not relevant to the study so some time was used trying to steer the conversation to the topic. Otherwise, results were quick and convenient and allowed for more people in the study to be interviewed.

The qualitative research question being explored was:

Research Question 1a. : What is the lived experience of the beginning nursing student when providing care during his/her initial clinical learning experiences, when paired or not?

The following are the inquiry questions used during the focus group interviews:

1. Describe how you think being paired (not being paired) affected your anxiety?
2. Describe a time during your clinical experiences when you were glad you were paired (not paired) with another student.
3. How do you think the clinical learning setting you were assigned helped or hindered your ability to care? (question for both groups)
4. Overall were you glad you were part of the non-paired (paired) group? Why?

PROBES:

1. Can you tell me a little more about that?
2. Can you give me an example of that?

A description of the phenomena described by students during the interviews was compiled by analyzing significance of statements and then development of meaning (Creswell, 2007). The essence of these experiences helped to provide understanding of the results obtained by the quantitative data collection preceding the interviews (Greene, 2007). The anxiety students feel and the caring behaviors they recognize and use in beginning learning experiences was explored in these focus group meetings.

### **Qualitative Sample.**

Forty-five of the 46 students participating in the study attended a follow-up focus group meeting. One student was unable to attend due to previous time commitments. The four groups consisting of either paired or non-paired students, not necessarily from the same clinical group setting, met for one hour over four days. Each group consisted of 9 – 12 students comprised of cohorts of fellow students, grouped by intervention. According to Creswell (2007), acceptable parameters for group size range between 6 and 12 participants.

Meetings (with pizza supplied) were held to include all students in order to explore the recollections of being paired or not for their initial experiences. How pairing (or not) of the students affected their anxiety levels and how they felt this related to their ability to provide care for their patient was of interest. This approach was used to further explore the findings provided in the quantitative data in this study. Students' perceptions of positive and negative effects of being paired or not for their initial clinical experiences were explored.

### **Qualitative Procedures**

Ground rules for the focus group meetings before the group dialogue consisted of the need to hear from everyone to get a well-rounded view of all students' experiences. During the interview process, this researcher never had to urge a member to yield the floor to another



student because of time or monopolization of the conversation. The students were very respectful of each other and yielded the discussion to other members willingly once they had addressed the question. All sessions were held to the time limit of one hour or less. I made a conscious effort to remain an outsider and facilitator, and not participant in the conversation.

All group responses were audiotaped. Interviews were transcribed verbatim with identification of salient themes and patterns used for data analysis. A separate personal journal was kept for process documentation. Clusters of meanings were identified and developed to understand the phenomenon of being paired or not, and how that affected the lived experience of the student in the clinical learning setting.

Interviews of clinical instructors explored their observations of the students in the various settings. The challenge again was to keep the instructors focused on the student observations as opposed to discussion of learning outcomes.

### **Qualitative Analyses.**

A phenomenological approach to analyze the group experience of anxiety in the clinical learning environment was used. An attempt to acquire an “intuitive grasp of the textural data” was done in the belief that the student comes with “a unique way of being in that human experience and actions follow from their self-interpretation” (Morse & Field, 1995). The participants' ideas and thoughts were explored in an effort to understand the common experiences of the participants (Creswell, 2007; Polkinghorne, 2005).

Significant statements from the transcripts were identified as a step in phenomenological research known as “horizontalization” (Creswell, 2007). Clusters of meanings that encompassed the overall general understanding of the phenomenon of anxiety and caring in the beginning student were organized from these statements and thoughts.

Textural descriptions (what the students described as their experience) and structural categories (that included a description of the setting [paired or not]) emerged from these statements. The influence of this setting as experienced by the student culminating in the description of the meaning of how being paired or not for initial clinical learning experiences affects students' anxiety was described (Creswell, 2007). A conceptual relationship was proposed between anxiety and caring and then explored through the data to help explain the qualitative data results.

Reliability or dependability is a challenge when investigating subjective phenomena such as anxiety and caring. One approach to facilitate accurate understanding and clarity of responses, is continual verbal prompting ("tell me more", "what I hear you saying is...", "is that correct?"). However, this investigator remained aware to only prompt the students or restate and confirm ideas without expanding on the verbal prompts or elaboration that would risk influencing the context of the individual experience and decrease validity of the data collection. Triangulation of data through peer input from other clinical instructors involved in student instruction increased dependability and reduced bias.

Meetings with the instructors at each time interval consisted of assessing for concerns and observations regarding the studies' progression and instructor observations. Comparison of common themes, textural and structural categories across multiple groups, and addressed the question of rigor and trustworthiness in students and instructors.

Triangulation provided further rigor and confidence in the findings. First, data was collected from four different random participant focus groups, differing in composition of participants from the original experience setting. In an attempt to come away from these analyses with a better understanding of what it is like to be paired in the initial clinical

experience as compared to not being paired for that same experience, clinical instructors provided insight with their interpretation of the responses and data.

### **Summary**

This chapter provided a description of the quantitative and qualitative methodology used in this study. It included a detailed description of the instruments and methods used to collect the data and procedures used to analyze the data.

An experimental repeated measures design was used to explore an intervention of pairing students for their initial clinical learning experiences, and the effect of this intervention on the student's perceived anxiety, caring ability, and caring efficacy. Pearson Product Correlation explored correlation between these variables. Regression analysis was used to explore the effect of caring efficacy scores on anxiety and caring ability scores. Selection to the groups was random and sample size was  $n=23$  for each group.

A focus group method explored the variables of interest in this study and any differences discovered during the quantitative analysis. This method allowed for further follow up to the measures of the instruments used in the quantitative portion of the study. Selection for the focus group members was dependent on whether the student had been paired during the study, or not, and not their clinical group throughout the study. This added robustness to the study.

## **Chapter 4**

### **Results**

The results chapter is organized into three sections: Quantitative section, a qualitative section and a summary of results. The sections are organized as follows: (1) Quantitative section: Assumptions, Equivalence of the two groups, Hypothesis One Analyses, Hypothesis Two Analyses, (2) Qualitative section: Inquiries, Procedures, Analysis; (3) Summary of the results

#### **Assumptions**

##### **Equivalence of the two groups.**

The frequency distributions of the demographic characteristics of the two groups of students (not paired and paired) are tabulated in Tables 2 to 6. The majority (over 50%) of the students in each group are between 19-36 years old (see Table 2) and are female (see Table 3. See tables 4 – 6 for further a listing of other demographic information).

Table 2

*Age distribution*

Intervention	Age	Frequency	Percent
Not paired	19-22	12	52.2
	23-36	6	26.1
	27-30	1	4.3
	31-34	1	4.3
	35-38	2	8.7
	39-41	1	4.3
	Total	23	100.0
Paired	19-22	9	39.1
	23-36	5	21.7
	27-30	7	30.4
	31-34	1	4.3
	39-41	1	4.3
	Total	23	100.0

Table 3

*Gender distribution*

Intervention		Frequency	Percent
Not paired	Female	22	95.7
	Male	1	4.3
	Total	23	100.0
Paired	Female	18	78.3
	Male	5	21.7
	Total	23	100.0

Table 4

*Distribution of educational qualifications*

Intervention	Qualification	Frequency	Percent
Not paired	Associates degree	5	21.7
	Bachelors degree	3	13.0
	No degree	15	65.2
	Total	23	100.0
Paired	Associates degree	5	21.7
	Bachelors degree	6	26.1
	Masters degree	1	4.3
	No degree	11	47.8
	Total	23	100.0

Table 5

*Distribution by previous experience*

Intervention	Experience	Frequency	Percent
Not paired	None	7	30.4
	CNA	6	26.1
	CNA+CMA	3	13.0
	PCT	3	13.0
	Vet tech,other	4	17.4
	Total	23	100.0
Paired	None	11	47.8
	CNA	6	26.1
	CNA+CMA	1	4.3
	PCT	4	17.4
	Pharm tech,other	1	4.3
	Total	23	100.0

Table 6

*Distribution by length of experience*

Intervention	Experience	Frequency	Percent
Not paired	None	5	21.7
	Less than 1 year	4	17.4
	1 year - 3 years	4	17.4
	Greater than 3 years	4	17.4
	CNA with no experience	2	8.7
	Unknown	4	17.4
	Total	23	100.0
Paired	None	9	39.1
	1 year - 3 years	7	30.4
	Greater than 3 years	4	17.4
	CNA with no experience	2	8.7
	Unknown	1	4.3
	Total	23	100.0

The results of non-parametric Kolmogorov-Smirnov two sample tests to compare the frequency distributions of the personal characteristics of two groups of students are presented in Table 7. The null hypothesis (that the frequency distribution was the same for the two groups of students) was not rejected for all of the Kolmogorov-Smirnov tests, indicated by  $p > .05$  for the test statistics (Table 7). The members of the two groups are equivalent with respect to their personal characteristics, consistent with the assumption of the research design.

Table 7

*Tests for equivalent characteristics of the paired and non- paired students*

Personal characteristic	Kolmogorov-Smirnov two sample test statistic	<i>p</i> value
Age	.885	.414
Gender	.590	.878
Type of experience	.590	.878
Length of experience	.590	.878
Educational level	.456	.985

n=23

### **Distribution tests.**

Kolmogorov-Smirnov tests were used to determine if the State Anxiety, Caring Ability, and Caring Efficiency scores were normally distributed (Fields, 2009). It was concluded that the State Anxiety was significantly non-normal at Time 1,  $D(46) = .205$ ,  $p < .05$  and Time 3,  $D(46) = .261$ ,  $p < .05$  in the non-paired group. Caring Ability, and Caring Efficacy scores were normally distributed at Time 1 and Time 2, and significantly non-normal at Time 3,  $D(46) = .032$ ,  $p < .05$  in the non-paired group. (See Tables 8, 9, 10). Parametric statistics were used ( $n = 23$  for each group). Once the sample size reaches greater than 12, the assumption of normality becomes less of an issue (Keppel & Wickens, 2004, p. 145).

In the data, there were potentials outliers identified at Times 1, 2 and 3 in the anxiety measures. All values were within 3 standard deviations of the mean, and because these were actual measures of the students' perceived anxiety, and caring ability, the values were retained in the analysis (Fields, 2009; Keppel & Wickens, 2004). These observations were a valid part of the distribution. Caring ability measures demonstrated potential outliers at Time 1 and Time 2, and again, these values are retained in the analysis. One potential outlier identified in Caring Efficacy Time 1, was retained. A check of data entry proved all data is entered correctly.



Table 8

*Tests for normality of State Anxiety scores*

Intervention		State Anxiety 1	State Anxiety 2	State Anxiety 3
Not Paired <sup>b</sup>	Kolmogorov-Smirnov <sup>a</sup>	.205	.125	.272
	<i>p value</i>	.013	.200*	.000
Paired <sup>b</sup>	Kolmogorov-Smirnov <sup>a</sup>	.090	.124	.097
	<i>p value</i>	.200*	.200*	.200*

<sup>a</sup>Lillefors significance correlation

\* This is a lower bound of true significance

<sup>b</sup>n=23

Table 9

*Tests for normality of Caring Ability Scores*

Intervention		Caring Ability 1	Caring Ability 2	Caring Ability 3
Not Paired	Kolmogorov-Smirnov <sup>a</sup>	.143	.121	.120
	<i>p value</i>	.200*	.200*	.200*
Paired	Kolmogorov-Smirnov <sup>a</sup>	.127	.111	.118
	<i>p value</i>	.200*	.200*	.200*

<sup>a</sup>Lillefors significance correlation

\* This is a lower bound of true significance

<sup>b</sup>n=23

Table 10

*Tests for normality of Caring Efficacy scores*

Intervention		Caring Efficacy 1	Caring Efficacy 2	Caring Efficacy 3
Not Paired	Kolmogorov-Smirnov <sup>a</sup>	.160	.108	.189
	<i>p value</i>	.129	.200*	.032
Paired	Kolmogorov-Smirnov <sup>a</sup>	.166	.108	.115
	<i>p value</i>	.102	.200*	.200*

<sup>a</sup>Lillefors significance correlation

\*This is a lower bound of true significance

<sup>b</sup>n=23

Table 11

*Tests for normality of Trait Anxiety Scores*

Intervention		Trait Anxiety 1	Trait Anxiety 2
Not Paired	Kolmogorov-Smirnov <sup>a</sup>	.188	.232
	<i>p value</i>	.034	.002
Paired	Kolmogorov-Smirnov <sup>a</sup>	.093	.109
	<i>p value</i>	.200*	.200*

<sup>a</sup>Lillefors significance correlation

\*This is a lower bound of true significance

<sup>b</sup>n=23**State Anxiety Inventory Results**

The mean State Anxiety scores for the two groups of students (not paired and paired) changed very little during the 10 weeks of the study. In the non-paired group the mean State Anxiety score increased from 36.83 for the first measure to 37.04 for the last measure. In the paired group the mean State Anxiety score decreased from 36.39 for the first measure to 35.57 for the last measure (Table 12).

Table 12

*Descriptive statistics for State Anxiety*

Dependent variable	Intervention	Mean	SD	N
State Anxiety 1	Not paired	36.83	13.456	23
	Paired	36.39	8.430	23
	Total	36.61	11.105	46
State Anxiety 2	Not paired	39.87	11.956	23
	Paired	38.48	12.591	23
	Total	39.17	12.161	46
State Anxiety 3	Not paired	37.04	15.723	23
	Paired	35.57	10.646	23
	Total	36.30	13.298	46

The null hypothesis of homogeneity of variance was not rejected as indicated by  $p > .05$  for Levene's test statistics for the three tests over time (Table 13). The theoretical assumption of ANOVA, that the variances were equal across the groups, is not violated.

Table 13

*Tests for homogeneity of variance*

Dependent variable	Levene's statistic	Degrees of Freedom		$p$ value
State Anxiety 1	2.331	1	44	.134
State Anxiety 2	.782	1	44	.381
State Anxiety 3	1.162	1	44	.287

The null hypothesis that there was no significant difference at  $p < .05$  between the State Anxiety scores of the two groups of students was not rejected, indicated by  $F(1,44) = .133$ ,  $p = .718$  for the between-subjects effects (Table 14). The effect size, indicated by  $\eta^2 = .003$  was very small. There was no significant change in the State Anxiety scores over time, and no interactions between the variables, indicated by  $p > .05$  for the within-subjects effects statistics (Table 15). It is concluded that the State Anxiety scores were not significantly lower in students who were paired versus those who were not paired for their initial clinical experiences over time.

Table 14

*Between-subjects effects for State Anxiety*

Source of variance	Type III Sum of Squares	Degrees of Freedom	Mean Square	F statistic	$p$ value	Effect Size $\eta^2$
Intervention	41.855	1	41.855	.133	.718	.003
Unexplained	13898.696	44	315.879			

Table 15

*Within-subjects effects for State Anxiety*

Source of variance		Type III Sum of Squares	Degrees of Freedom	Mean Square	F statistic	p value	Effect size $\eta^2$
Time (Anxiety)	Sphericity Assumed	228.580	2	114.290	1.619	.204	.035
	Greenhouse-Geisser	228.580	1.851	123.508	1.619	.206	.035
	Huynh-Feldt	228.580	1.972	115.892	1.619	.204	.035
	Lower-bound	228.580	1.000	228.580	1.619	.210	.035
Anxiety X Intervention (Interaction)	Sphericity Assumed	7.710	2	3.855	.055	.947	.001
	Greenhouse-Geisser	7.710	1.851	4.166	.055	.937	.001
	Huynh-Feldt	7.710	1.972	3.909	.055	.945	.001
	Lower-bound	7.710	1.000	7.710	.055	.816	.001
Unexplained	Sphericity Assumed	6213.043	88	70.603			
	Greenhouse-Geisser	6213.043	81.432	76.297			
	Huynh-Feldt	6213.043	86.784	71.592			
	Lower-bound	6213.043	44.000	141.206			

It is concluded that the State Anxiety scores were not significantly lower in students who were paired versus those who were not paired for their initial clinical experiences.

### **Caring Ability Inventory results**

Repeated measures ANOVA was performed to test the null hypothesis that there was no significant difference at  $p < .05$  between the Caring Ability scores of the two groups of students (Tables 16, 17, and 18). The descriptive statistics indicated that the mean Caring Ability Scores for the two groups of students (paired and not paired) changed very little

during the 10 weeks of the study (Table 16). In the non-paired group, the mean Caring Ability score increased from 219.13 for the first measure to 223.52 for the last measure. In the paired group, the mean Caring Ability score increased from 213.78 for the first measure to 215.57 for the last measure (Table 16).

Table 16

*Descriptive statistics for Caring Ability*

	Intervention	Mean	SD	N
Caring Ability 1	Not paired	219.13	10.843	23
	Paired	213.78	12.497	23
	Total	216.46	11.880	46
Caring Ability 2	Not paired	216.48	13.849	23
	Paired	209.61	16.618	23
	Total	213.04	15.519	46
Caring Ability 3	Not paired	223.52	12.032	23
	Paired	215.57	17.796	23
	Total	219.30	15.489	46

There was a statistically significant change in the Caring Ability scores over time, indicated by  $F(1,44) = 2.943, p = .093, \eta^2 = .063$  for the between-subjects effects (Table 17). For the within-subjects effects statistics (Table 18) a significant main effect was demonstrated,  $F(2,88) = 9.388, p = .000$ . The effect size, indicated by  $\eta^2 = .176$  was medium and no interaction was found between the intervention and caring ability,  $F(2, 88) = .288, p > .05, \eta^2 = .006$ .

Table 17

*Between-subjects effects for Caring Ability*

Source of variance	Type III Sum of Squares	Degrees of Freedom	Mean Square	F statistic	p value	Effect Size $\eta^2$
Intervention	1487.022	1	1487.022	2.943	.093	.063
Unexplained	26661.188	44	605.936			

Table 18

*Within-subjects effects for Caring Ability*

		Type III Sum of Squares	Degrees of Freedom	Mean Squared	F Statistic	p value	Effect size $\eta^2$
Time (CAI)	Sphericity Assumed	904.014	2	452.007	9.388	.000	.176
	Greenhouse-Geisser	904.014	1.862	485.609	9.388	.000	.176
	Huynh-Feldt	904.014	1.985	455.480	9.388	.000	.176
	Lower-bound	904.014	1.000	904.014	9.388	.004	.176
Caring Ability X Intervention (Interaction)	Sphericity Assumed	27.696	2	13.848	.288	.751	.006
	Greenhouse-Geisser	27.696	1.862	14.877	.288	.735	.006
	Huynh-Feldt	27.696	1.985	13.954	.288	.749	.006
	Lower-bound	27.696	1.000	27.696	.288	.594	.006
Unexplained	Sphericity Assumed	4236.957	88	48.147			
	Greenhouse-Geisser	4236.957	81.911	51.726			
	Huynh-Feldt	4236.957	87.329	48.517			
	Lower-bound	4236.957	44.000	96.294			

**Caring Efficacy Scale Results**

Repeated measures ANOVA was performed to test the null hypothesis that there was no significant difference at  $p < .05$  between the Caring Efficacy scores of the two groups of students (Tables 19, 20, and 21). The descriptive statistics indicated that the mean Caring Efficacy Scores for the two groups of students (paired and not paired) did change during the 10 weeks of the study (Table 19). In the non-paired group, the mean Caring Efficacy score increased from 160.17 for the first measure to 162.91 for the last measure. In the paired group, the mean Caring Efficacy score increased from 151.78 for the first measure to 152.04 to 156.35 for the last measure. Mauchly's test indicates the assumption of sphericity was not violated,  $W(2) = 1.10, p > .05$ .

Test results for within-subject effects indicate a significant main effect for the caring efficacy scores,  $F(2,88) = 4.039, p = .021, \eta^2 = .084$  and no efficacy score and intervention interaction with  $F(2, 88) = p > .05, \eta^2 = .005$ . Tests of within subjects contrasts indicate a significant linear component for caring efficacy scores,  $F = 4.430(1,44) = p = .041$ , significant at all time measurements except time 1. Caring Efficacy scores of the between-subjects effects are statistically significant as indicated by  $F(1,44) = 4.913, p = .032$  for the between-subjects effects (Table 20). The effect size, indicated by  $\eta^2 = .100$  was medium.

There is a significant change in the Caring Efficacy scores over time by  $F(2,88) = p < .05$  for the within-subjects effects statistics (Table 21). The main effect of CES scores was statistically significant.

Table 19

*Descriptive statistics for Caring Efficacy*

	Intervention	Mean	SD	N
Caring Efficacy 1	Not paired	160.17	12.397	23
	Paired	151.78	16.572	23
	Total	155.98	15.080	46
Caring Efficacy 2	Not paired	158.52	10.535	23
	Paired	152.04	13.583	23
	Total	155.28	12.457	46
Caring Efficacy 3	Not paired	162.91	10.238	23
	Paired	156.35	11.699	23
	Total	159.63	11.365	46

Table 20

*Between-subject effects for Caring Efficacy*

Source of variance	Type III Sum of Squares	Degrees of Freedom	Mean Square	F statistic	p value	Effect Size $\eta^2$
Intervention	1761.225	1	1761.225	4.913	.032	.100
Unexplained	15774.261	44	358.506			



Table 21

*Within-subjects effects for Caring Efficacy*

		Type III Sum of Squares	Degrees of Freedom	Mean Squared	F Statistic	<i>p</i> value	Effect size $\eta^2$
Time (CES)	Sphericity Assumed	501.797	2	250.899	4.039	.021	.084
	Greenhouse-Geisser	501.797	1.951	257.238	4.039	.022	.084
	Huynh-Feldt	501.797	2.000	250.899	4.039	.021	.084
	Lower-bound	501.797	1.000	501.797	4.039	.051	.084
Caring Efficacy X Intervention (Interaction)	Sphericity Assumed	26.841	2	13.420	.216	.806	.005
	Greenhouse-Geisser	26.841	1.951	13.759	.216	.801	.005
	Huynh-Feldt	26.841	2.000	13.420	.216	.806	.005
	Lower-bound	26.841	1.000	26.841	.216	.644	.005
Unexplained	Sphericity Assumed	5466.696	88	62.122			
	Greenhouse-Geisser	5466.696	85.831	63.691			
	Huynh-Feldt	5466.696	88.000	62.122			
	Lower-bound	5466.696	44.000	124.243			

The Caring Efficacy means of the non-paired group increased from Time 1 (160.17) to Time 3 (162.91) with a decrease in Caring Efficacy at Time 2 (158.52). Scores in the paired group were 151.78, 152.04, and 156.35 respectively. There was a significant linear effect within subjects,  $F(1, 44) = 4.430, p < .05, \eta^2 = .091$ .

**Correlations amongst the variables**

To further evaluate the relationship of the intervention on the variables of interest, a matrix of Pearson's coefficients demonstrates the strengths of the correlations between the

measures of State Anxiety, Caring Ability and Caring Efficacy (Table 22). The decision rule was to reject the null hypothesis of no significant correlation if  $p < .001$  for the correlation coefficient using Bonferroni corrections. Significance levels are listed under the correlation coefficients. The scores for State Anxiety (State Anxiety 1, State Anxiety 2, and State Anxiety 3) demonstrated positive correlations with each other, consistent with the repeated measures design. Similarly the Caring Ability (Caring Ability 1, Caring Ability 2, and Caring Ability 3) and Caring Efficacy scores (Caring Efficacy 1, Caring Efficacy 2, and Caring Efficacy 3) were correlated with each other across the repeated measures. The correlation between Caring Ability Time 1 and Time 3 demonstrated a negative correlation in the non-paired group.

Table 22

*Correlations between State Anxiety, Caring Ability, and Caring Efficacy*

Intervention		State Anxiety 1	State Anxiety 2	State Anxiety 3	Caring Ability 1	Caring Ability 2	Caring Ability 3	Caring Efficacy 1	Caring Efficacy 2
Not Paired <sup>a</sup>	State Anxiety 2	.684** .000							
	State Anxiety 3	.367	.681** .000						
	Caring Ability 1	<b>-.138</b>	-.393	-.283					
	Caring Ability 2	-.412	<b>-.638**</b> .001	-.553** .006	.798** .000				
	Caring Ability 3	.115	.085	<b>-.045</b>	<b>-.166</b>	.012			
	Caring Efficacy 1	<b>-.353</b>	-.056	.384	<b>.416*</b>	.324	-.236		
	Caring Efficacy 2	-.426*	<b>-.273</b>	.035	.602**	<b>.600**</b> .002	-.236	.736**	
	Caring Efficacy 3	-.062	.011	<b>.160</b>	.384	.418*	<b>-.049</b>	.561**	.670**
Paired <sup>a</sup>	State Anxiety 2	.358							
	State Anxiety 3	.538**	.661**						
	Caring Ability 1	<b>.410</b>	<b>-.536**</b>	-.305					
	Caring Ability 2	-.418*	<b>-.583**</b>	-.598**	.788**				
	Caring Ability 3	-.425*	-.531**	<b>-.658**</b>	<b>.693**</b>	.871**			
	Caring Efficacy 1	<b>-.362</b>	-.169	.008	<b>.419*</b>	.334	.421*		
	Caring Efficacy 2	-.367	<b>-.351</b>	-.307	.742** .000	<b>.749**</b> .000	.731** .000	.608** .002	
	Caring Efficacy 3	-.200	-.210	<b>-.294</b>	.363	.333	<b>.532**</b> .009	.646** .001	.573** .004

Note: \*\* Significant correlation at  $p < .001$  or as listed    \* Significant correlation at  $p < .05$     <sup>a</sup>n = 23

Amongst the group of non-paired students, all three correlation coefficients of interest (Time 1, 2, and 3) between Caring Ability and State Anxiety were negative, reflecting an inverse relationship, i.e. that State Anxiety declined as Caring Ability increased. The correlation coefficients ranged from  $-.045$  (at Time 3) to  $-.638$  (at Time 2), of which only the  $.638$  is statistically significant at  $p < .05$  in the non-paired group. Two of the three correlation coefficients between Caring Efficacy and State Anxiety were negative, reflecting an inverse relationship, i.e., that State Anxiety declined as Caring Efficacy increased. The correlation coefficients ranged from  $-.362$  to  $-.294$ , but none were statistically significant at  $p < .05$ .

Amongst the group of non-paired nursing students, the correlation coefficient at Time 3 between caring efficacy and caring ability was negative, suggesting as caring efficacy increased, caring ability decreased. The correlation coefficients ranged from  $-.049$  (at Time 3) to  $.600$  (at Time 2), with Time 1 and 2 demonstrating statistical significance at  $p < .05$  levels with positive correlations.

The correlation between caring ability, Time 1 and Time 3 is negative in the non-paired group, indicating a decrease in caring ability scores over time. The decrease is not statistically significant.

Amongst the group of paired students, two of the three correlation coefficients between Caring Ability and State Anxiety were negative, reflecting an inverse relationship, with a statistically significant correlation at Time 2 and Time 3. Measurements at Time 1 demonstrated a positive relationship. The correlation coefficients for Caring Ability ranged from  $-.658$  to  $.410$  (Time 1)(Table 22).

Amongst the group of paired nursing students, there were no statistically significant correlations between Caring Efficacy and State Anxiety. The correlation coefficients ranged

from -.294 to -.362 (Table 22). The lack of statistically significant negative correlations between Caring Efficacy and State Anxiety suggests that Caring Efficacy did not strongly influence State Anxiety in the groups.

Amongst the group of nursing students who were paired, all three correlation coefficients between caring efficacy and caring ability were positive, and statistically significant at  $p < .05$ .

Hypothesis two: Caring efficacy scores will have an inverse relationship with anxiety and a positive effect on caring ability scores.

A total of six linear regression analyses were completed to address hypothesis two from measures at Time 1, Time 2, and Time 3

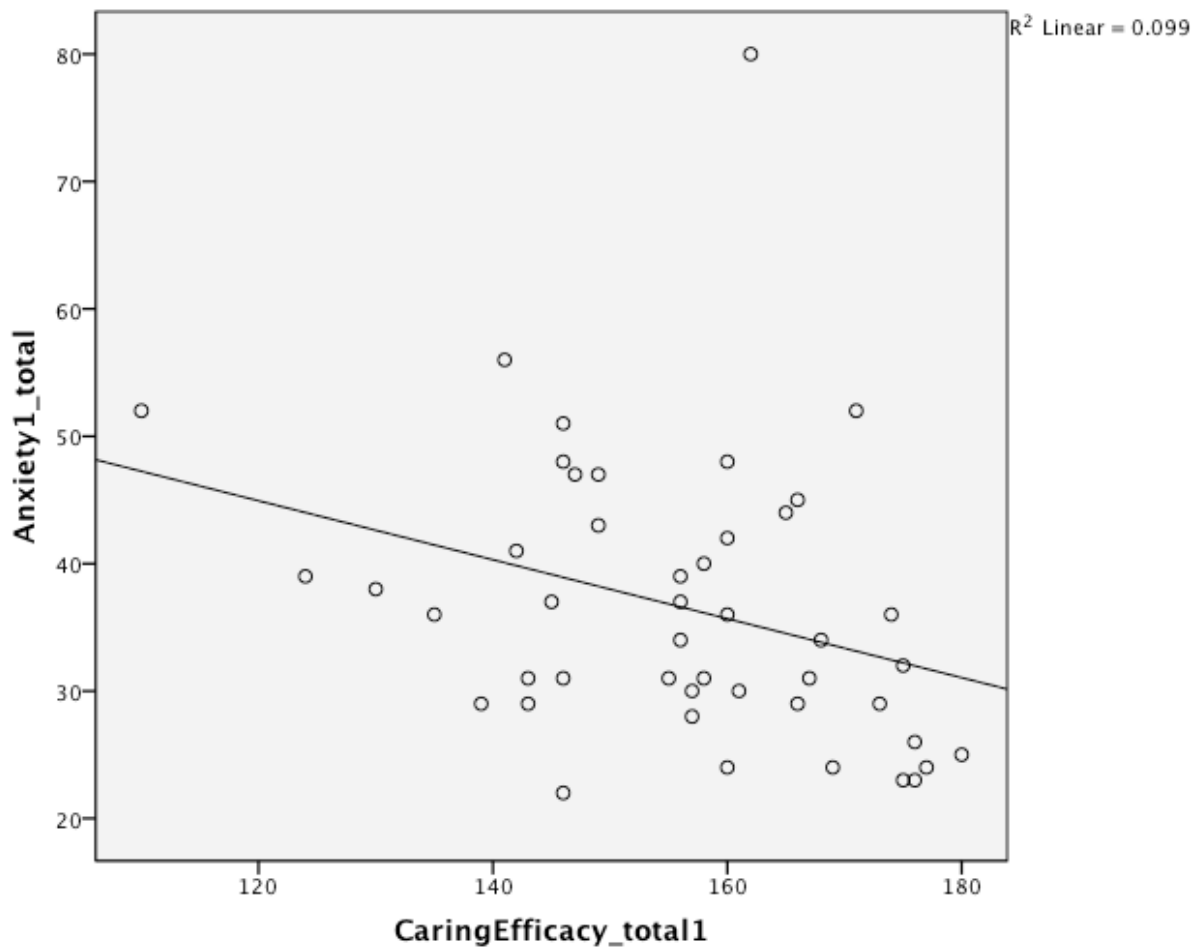
Time 1:

Linear regression analyses were conducted to evaluate the prediction of state anxiety and caring ability scores at Time 1, 2 and 3; before students entered the clinical learning setting, at five weeks and post-clinical experience.

The scatter plot in Figure 2 represents data used for the linear regression analysis for Time 1. Caring efficacy scores did significantly predict anxiety scores,  $R^2 = .099$ , adjusted  $R^2 = .078$ ,  $F(1,44) = 4.823$ ,  $p < .05$ . The regression equation for predicting the overall anxiety score is:  $Anxiety = -.231 \text{ Caring Efficacy} + 72.709$ . The 95% confidence interval for the slope, 39.429 to 105.990 does not contain the value of zero, and therefore caring efficacy measures predict the anxiety scores measured at Time 1. The effect was statistically significant with a medium effect. The correlation between caring efficacy and anxiety is -.314. Approximately 10% of the variance of the anxiety is accounted for by its linear relation with caring efficacy.

Figure 2

*Correlation of caring efficacy and anxiety at Time 1*

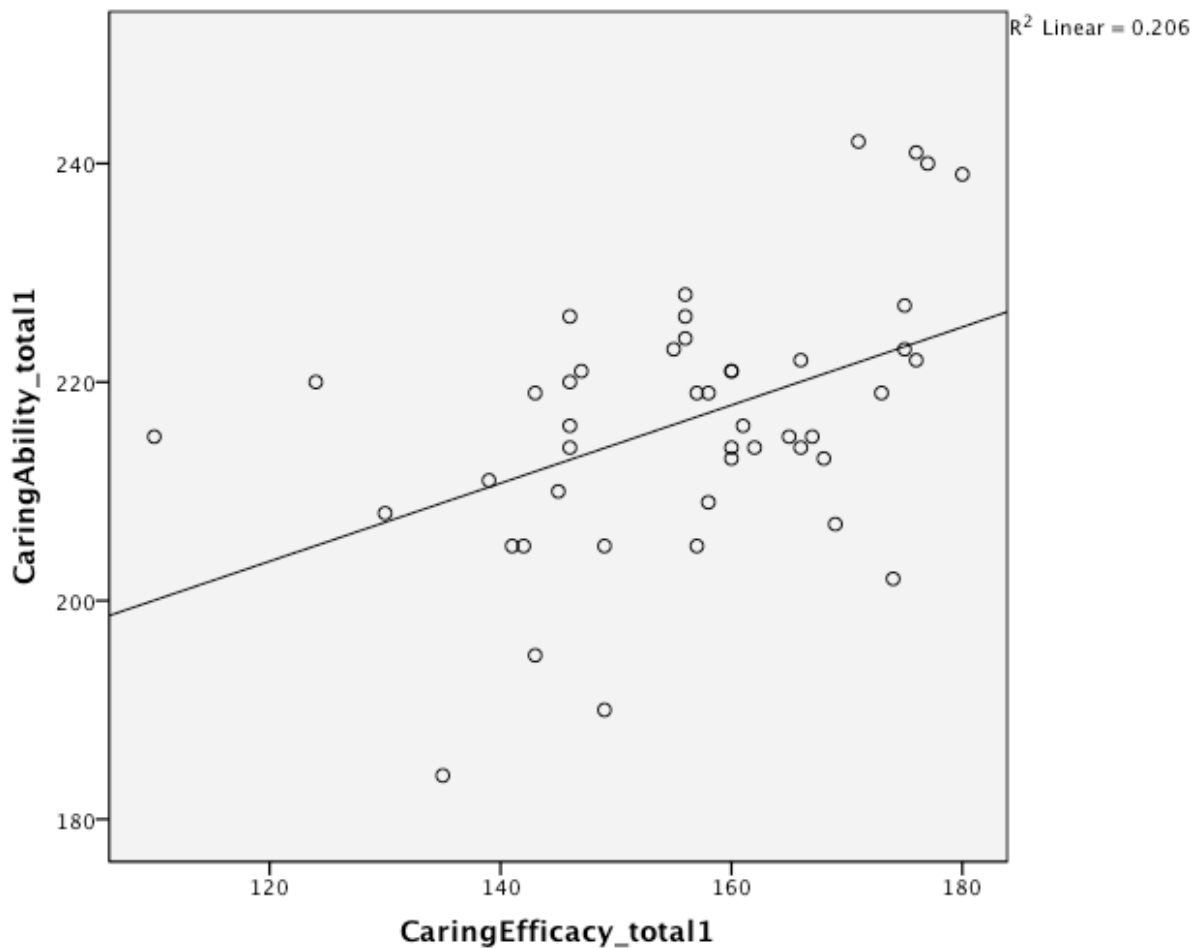


The scatter plot in Figure 3 represents data used for the linear regression analysis for the Time 1 regression of Caring efficacy scores on caring ability. Caring efficacy scores significantly predict caring ability scores,  $F(1, 44) = 11.387, p < .05, R^2 = .206$ , adjusted  $R^2 = .188$  with a medium effect. The regression equation for predicting the overall caring ability scores is:  $Caring\ Ability = .357\ Caring\ Efficacy + 160.737$ . The 95% confidence interval for the slope, 127.30 to 194.167 does not contain the value of zero, and therefore caring efficacy measures predict the caring ability scores measured at Time 1. The correlation between

caring efficacy and anxiety is .357. Approximately 20.6 of the variance of the caring ability score is accounted for by its linear relation with caring efficacy.

Figure 3

*Correlation of caring efficacy and caring ability at Time 1*



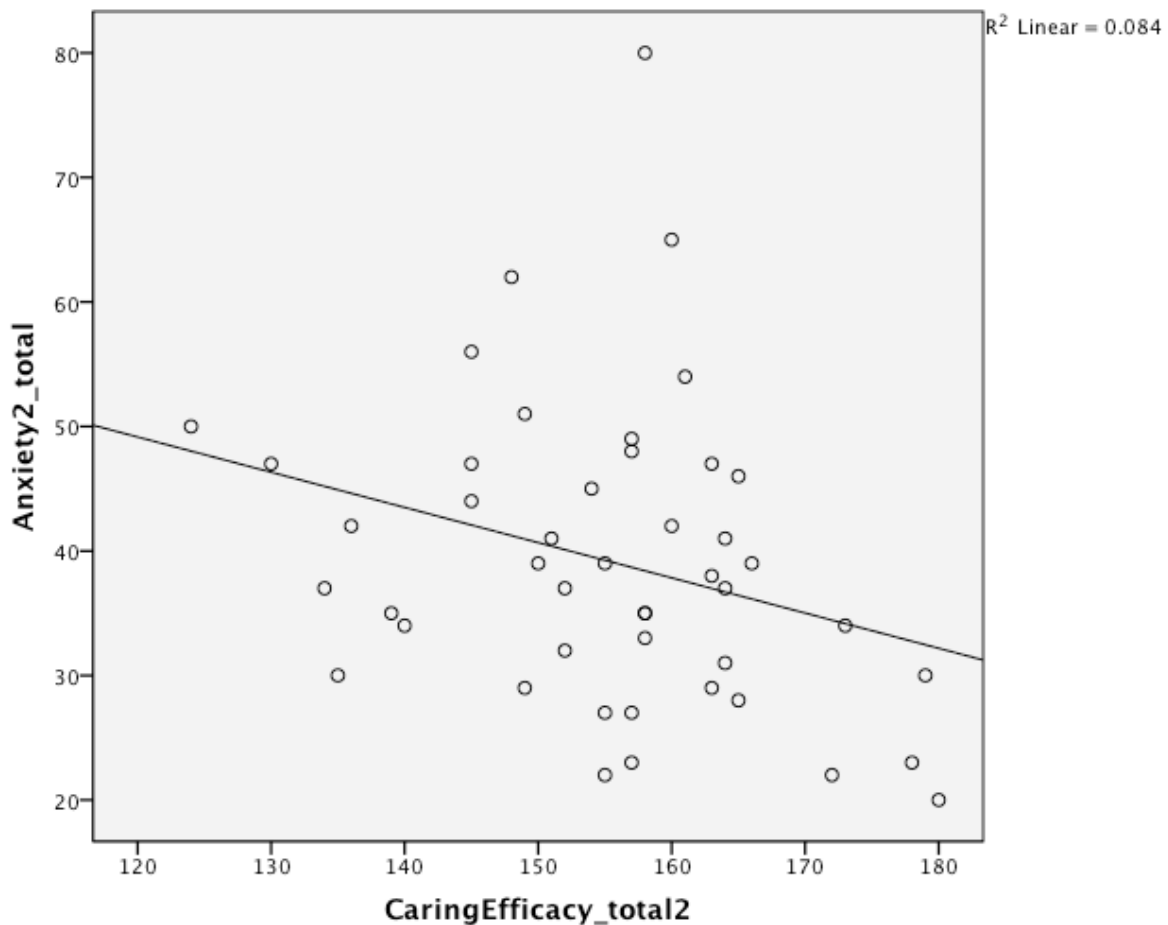
Time 2:

Caring efficacy scores regressed on state anxiety failed to render a statistically significant correlation,  $p > .05$ . Caring efficacy scores do not significantly predict anxiety scores at the  $p < .05$ , but is worth noting,  $F(1, 44) = 4.033$ ,  $p = .051$ ,  $R^2 = .084$ , adjusted  $R^2 =$

.063, indicating there is a small effect. The 95% confidence interval for the slope, 38.878 to 127.314 does not contain the value of zero.

Figure 4

*Correlation of caring efficacy and state anxiety scores at Time 2*



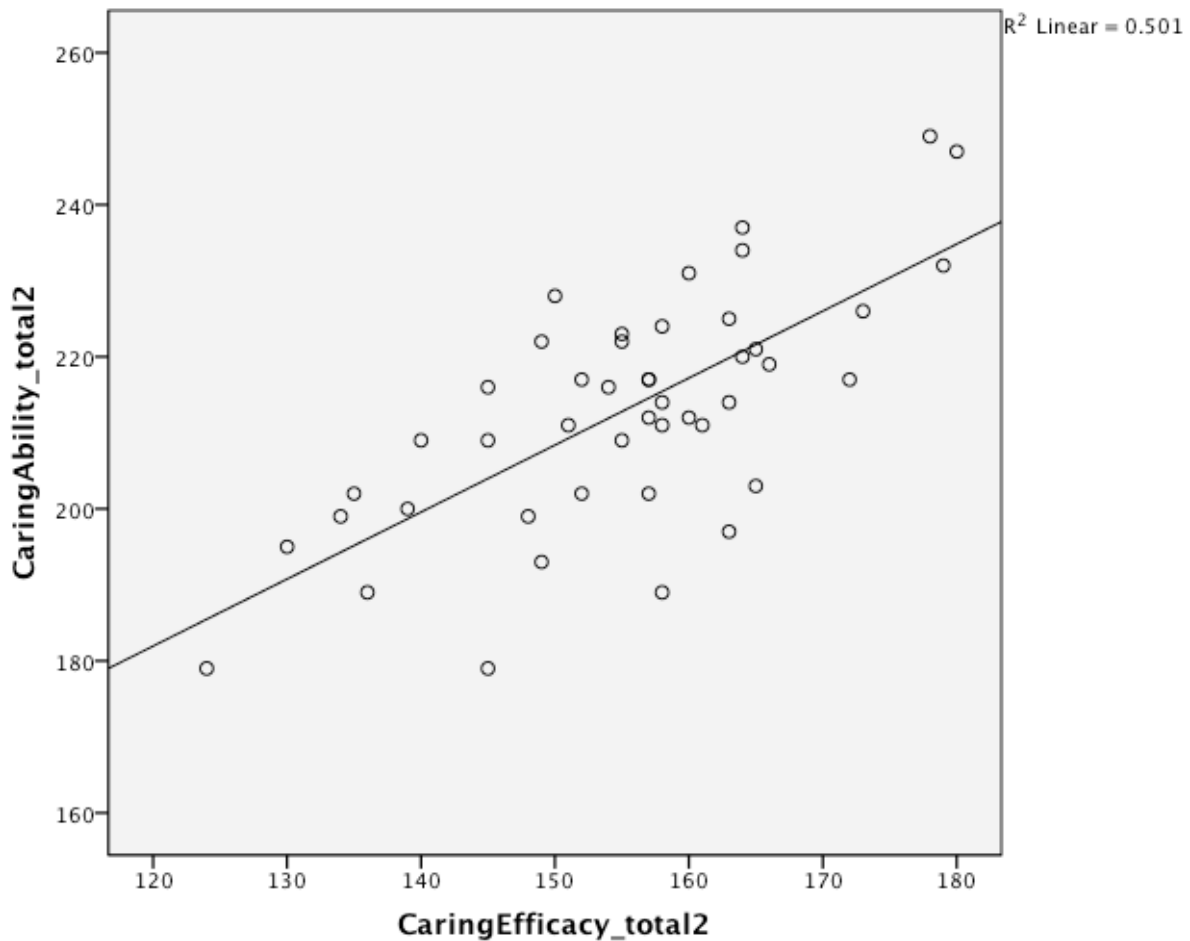
Caring efficacy scores regressed on caring ability at Time 2 are statistically significant,  $F(1, 44) = 44.110$ ,  $p < .05$ ,  $R^2 = .501$ , adjusted  $R^2 = .489$ , with a large effect (Figure 4). The regression equation for predicting the overall caring ability scores is: *Caring Ability* = .881Caring Efficacy + 76.170. The 95% confidence interval for the slope, 34.505 to 117.835 does not contain the value of zero, and therefore caring efficacy measures predict the caring ability scores measured at Time 2. There is a statistically significant large effect.



Approximately 50% of the variance in caring ability scores is accounted for by its linear relation with caring efficacy.

Figure 5

*Correlation of caring efficacy and caring ability at Time 2*



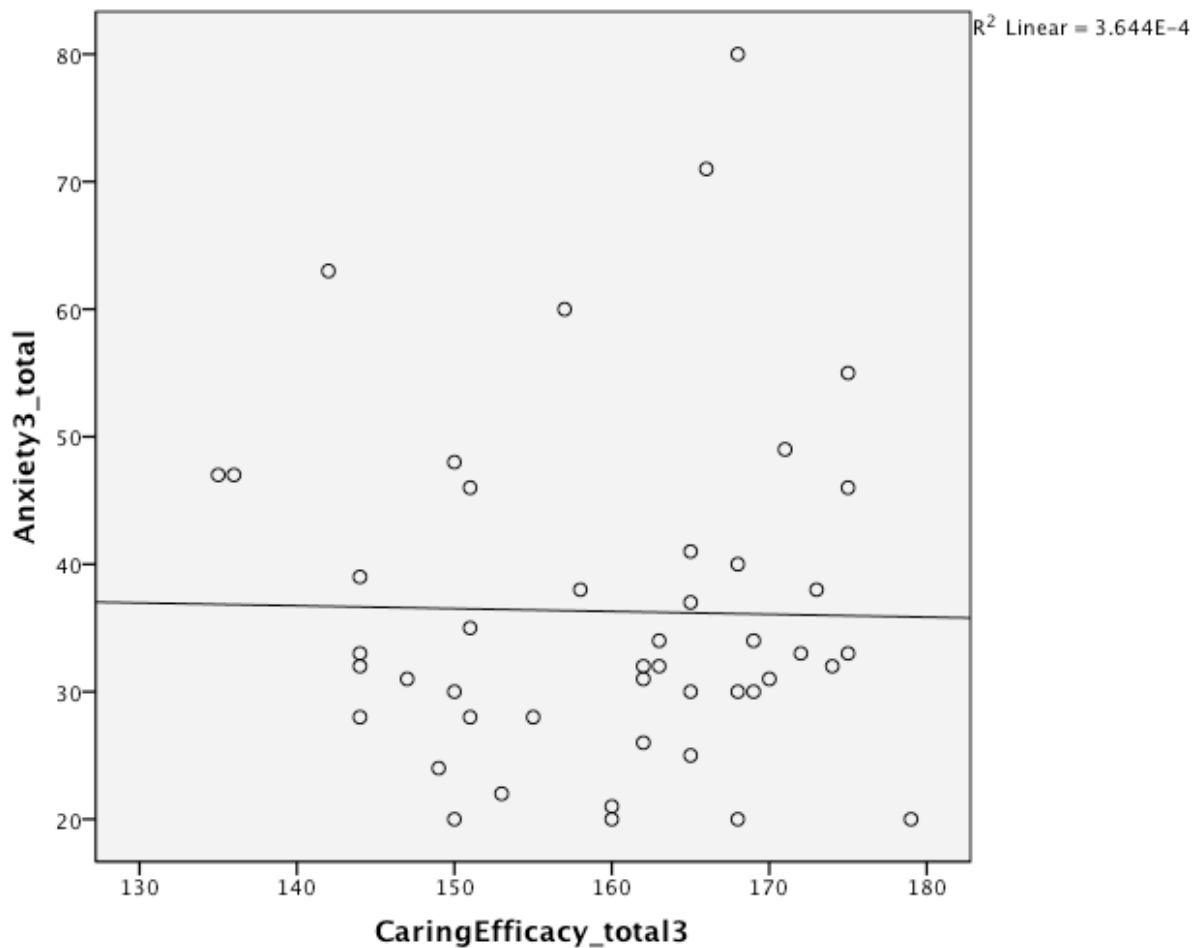
Time 3:

The regression equation for predicting the overall anxiety score is:  $Anxiety = -.022 \text{ Caring Efficacy} + 39.870$ . The 95% confidence interval for the slope, -17.008 to 96.748 contains the value of zero, so the caring efficacy is not significantly related to the anxiety experienced at Time 3. The correlation between anxiety and caring efficacy was -.019. The

data suggests none of the student's anxiety scores were predicted by a linear relationship with caring efficacy at this measurement.

Figure 6

*Correlation of caring efficacy and state anxiety at Time 3*

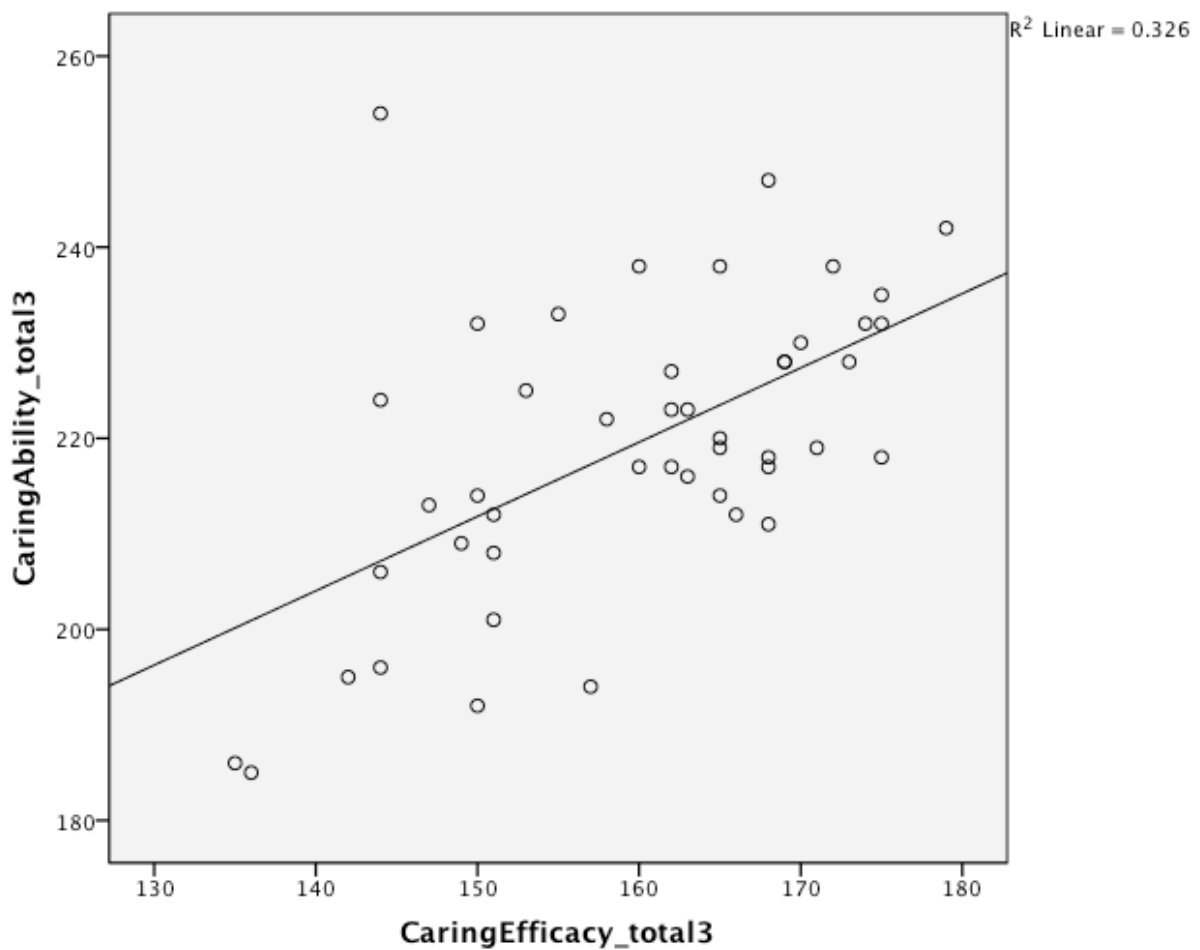


Caring efficacy scores were regressed on caring ability scores at Time 3. The scatter plot in Figure 4 demonstrates a linear relationship between caring efficacy and caring ability. Caring efficacy scores did significantly predict caring ability scores at Time 3,  $F(1, 44) = 21.257, p < .05, R^2 = .326$ , adjusted  $R^2 = .310$ . The regression equation for predicting the overall caring ability is:  $\text{Caring ability} = .778 \text{ Caring efficacy} + 95.143$ . The 95% confidence

interval for the slope, 40.734 to 149.551 does not contain the value of zero, so caring efficacy significantly predicts caring ability scores at Time 3. The correlation between caring ability and caring efficacy was .571. Approximately 32.6% of the variance of caring ability is accounted for by its linear relationship with caring efficacy, which is a large effect.

Figure 7

*Correlation of caring efficacy and caring ability scores at Time 3*



**Summary of quantitative analyses**

Three repeated measure ANOVAs explored the relationship between paired and non-paired groups of nursing students' anxiety, caring ability and caring efficacy scores using three different measures over time. Estimated effect sizes and observed power were calculated through SPSS. Students completed the State Trait Anxiety Inventory, Caring Ability Inventory, and Caring Efficacy Scale, scoring perceived anxiety and caring ability and efficacy. No significant differences were demonstrated in the measures, except for Caring Efficacy, where a significant linear effect was demonstrated within subjects,  $F(1, 44) = 4.430$ ,  $p < .05$ .

Pearson Product Moment Correlation was used to assess the correlation between the groups and the variables. Amongst the paired group of nursing students, all three correlation coefficients between caring efficacy and caring ability were positive, and statistically significant at  $p < .05$ . Correlations amongst the non-paired group were fewer and there were fewer statistically significant tests.

Based on the result of the linear regressions, caring efficacy does appear to have minimal predictive power for state anxiety (less than 10%) and moderate predictive power for caring ability scores (up to 50%).

Although not statistically significant, it is interesting to examine the means of the measures over time by intervention (Figure 8, 9, 10). Lower anxiety scores are demonstrated in the paired group, and a higher increase in caring efficacy scores. Caring ability demonstrates a larger mean difference in the non-paired group, and has the largest correlations overall in the regression analysis (at Time 2) with caring efficacy.

Figure 8

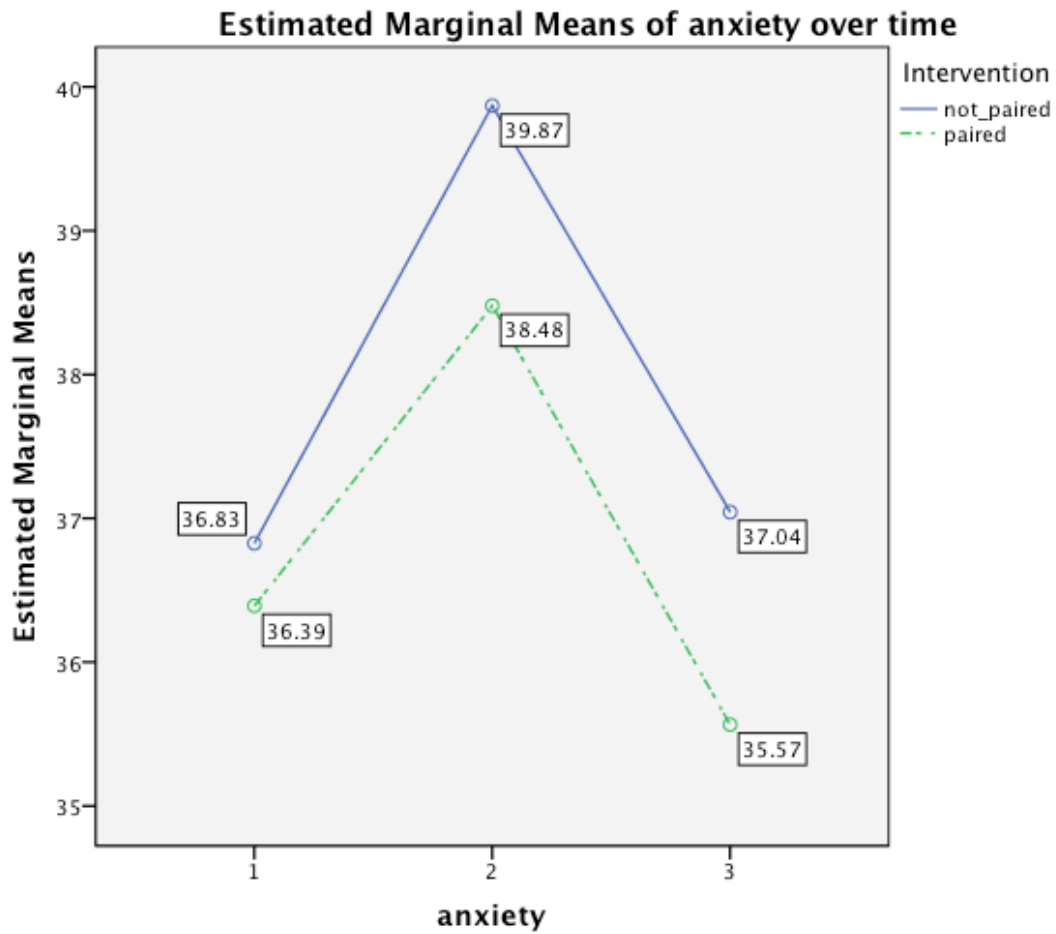
*Estimated marginal means of anxiety by intervention*

Figure 9

*Estimated marginal means of caring ability by intervention*

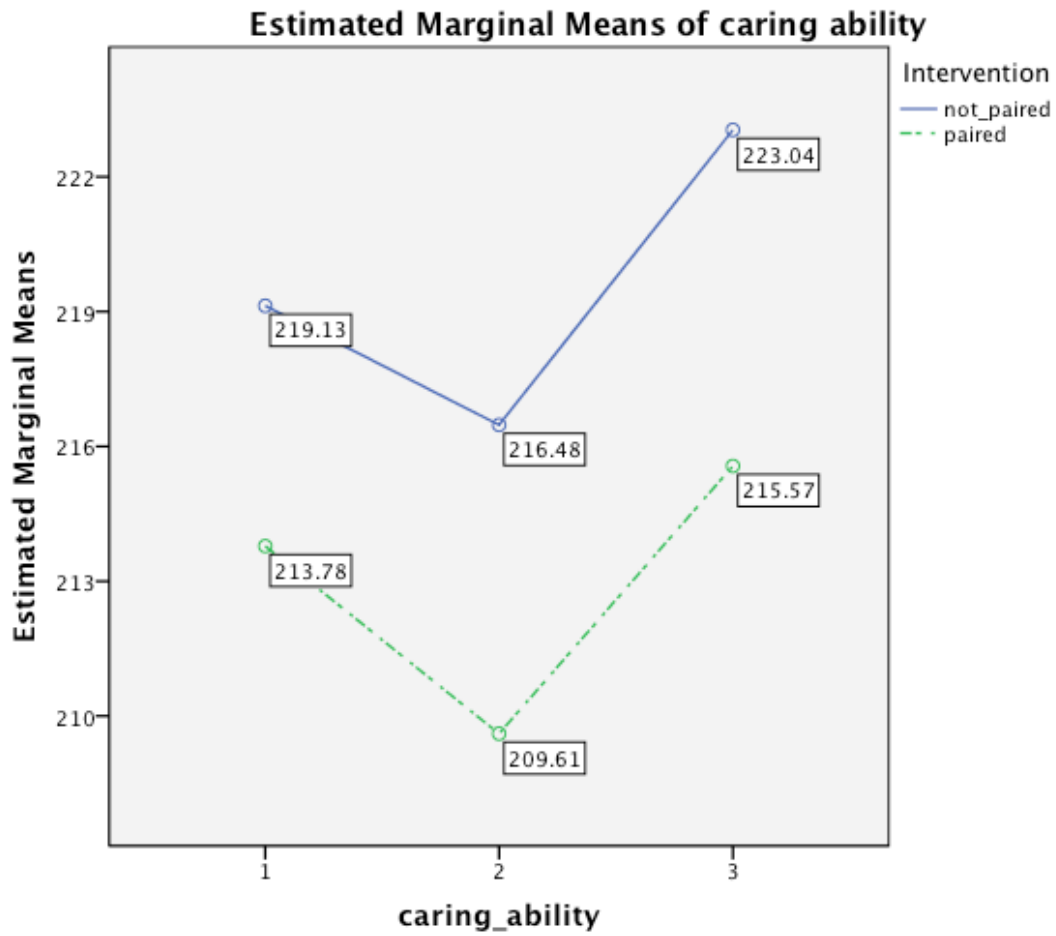
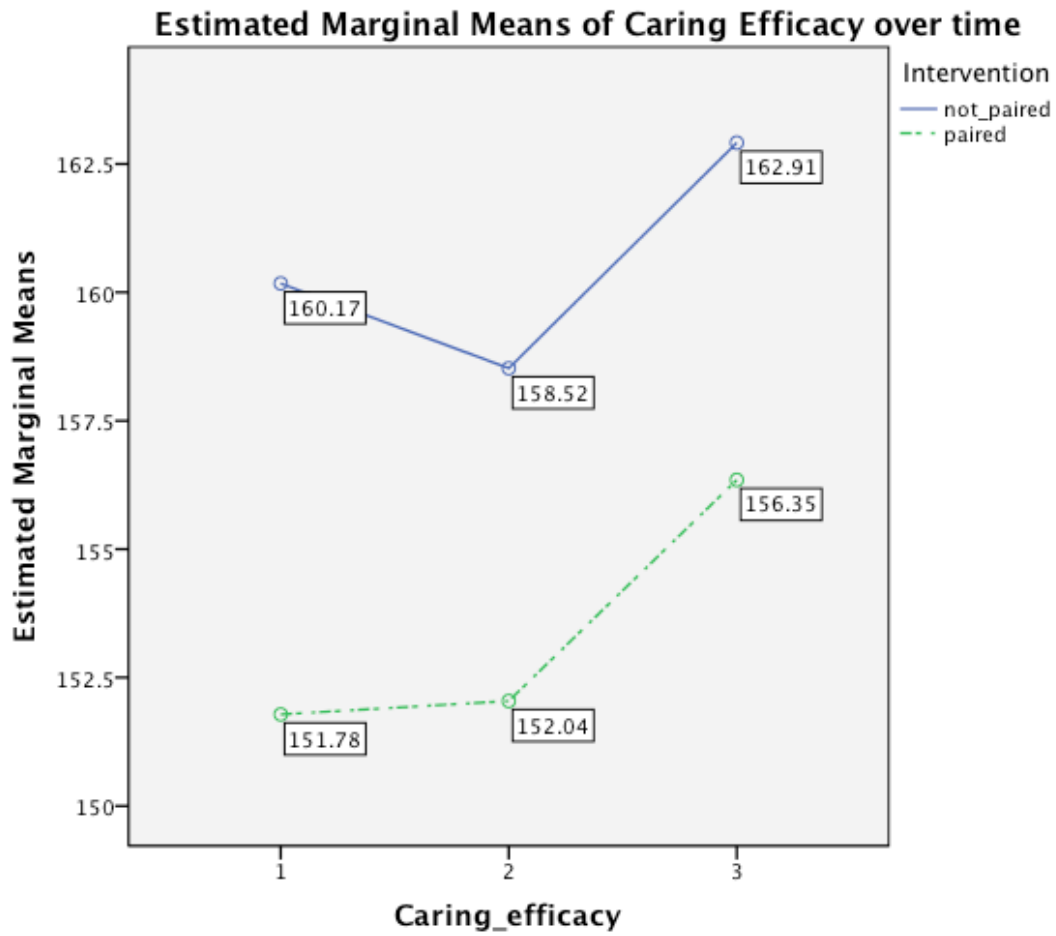


Figure 10

*Estimated marginal means of caring efficacy by intervention*



**Qualitative Research Results**

This section is arranged as follows: (1) Research question; (2) Focus group question 1, 2, 3 and 4 responses (3) Summary of findings

The following research question was explored:

1a. What is the lived experience of the beginning nursing student when providing care during his/her initial clinical learning experiences, when paired or not?

1. Describe how you think being paired (not being paired) affected your anxiety?
2. Describe a time during your clinical experiences when you were glad you were paired (not paired) with another student.
3. How do you think the clinical learning setting you were assigned helped or hindered your ability to care? (question for both groups)
4. Overall were you glad you were part of the non-paired (paired) group?

A phenomenological approach was used to better understand the lived experience of anxiety experienced by the beginning-nursing student and how being placed with a peer (or not) changed the reality of that anxiety. Distinct themes, textural and structural categories emerged from the students' responses during the focus group follow up interviews. Themes that emerged are described as reported by student accounts of their lived experiences while in their initial clinical learning experiences in various clinical learning settings.

Both groups verbalized the fact they experienced anxiety when entering the clinical learning setting and this is supported in the literature (Admi, 1997; Beck et. al., 1997; Kleehammer et al., 1990; Lindop, 1999; Mahat, 1998; Moscaritolo, 2009; Oermann & Standfest, 1997; Sharif & Masoumi, 2005; Shipton, 2002; Wilson, 1994; Wilson, 1995; Windsor, 1987). Procedures, transfers, harming the patient, and communication were all



mentioned as concerns and causing anxiety in the students. This is supported in the literature as well.

1. Describe how you think being paired (not being paired) affected your anxiety?

Two horizontal themes emerged: 1) procedures 2) communication

Paired respondents tell of how it was good to have some one in close proximity to help with transfers, questions of charting and other daily tasks that arose. One of the paired students expressed, “I wasn’t as afraid I was going to hurt someone”. Another student in the paired group stated, “care pairs should be emphasized and promoted. I don’t think I could have made it without someone there – especially at first.”

One of the non-paired students stated “I’m glad I got it over with – being by myself – cause I know there won’t be anyone there for me when I get out it practice.” Another non-paired student stated “my anxiety was reduced because I had prepared; not whether someone else was there or not”.

2. Describe a instance during your clinical experiences when you were glad you were paired (not paired) with another student.

Several themes emerged. First was the idea that the first day was, and would have been, ideal to be paired, and this was expressed for each new location that the student attended. A student in the non-paired group verbalized, “It would have been nice to be with some one closer who was going through the same thing I was”. Those who were paired verified this statement, such as “Being paired helped and I didn’t feel I was being thrown into it all by myself.” [It is interesting to note, that even though this term was used only once in this study of being “thrown in” to clinical learning situations, it is a common term students use – even with 5 weeks of preparation and several days devoted to orientation.]

Students in both groups verbalized positive aspects of the pairing intervention.

“Everybody has different strengths and weaknesses and it just goes hand in hand that you learn from each other.” The non-paired group kept making references to “I suppose with a partner...” while paired students always spoke of the actual experiences.

In the group that was not paired, the main emerging theme was the fact they didn’t have to worry about “sharing procedures” with another classmate and this was expressed in every focus group by the non-paired students.

3. How do you think the clinical learning setting you were assigned helped or hindered your ability to care? (question for both groups)

The main theme that emerged from the interviews was that of performing procedures, whether paired or not as causing anxiety. One of the roles of the beginning student is practicing beginning skills, and this is anxiety provoking and is prevalent in the nursing literature. This is the main focus of new students when entering the clinical learning setting and seen by novice nurses as what a nurse does (Benner et. al., 2010). Those who were paired stated it was good to have a partner or helper “just in case” and this helped them feel more confident when providing care. Students who were not paired voiced the fact that they didn’t have to “share” procedures or “worry about being intimidated in front of their peers” although both groups mentioned it was good to have someone “as an extra set of eyes and ears” (paired) and “would have been nice at first” (non-paired). “I had a chance to insert a Foley catheter and I was glad I didn’t have to worry about another student getting that opportunity instead of me!” (non-paired).

Comments such as “I would have got so much more done if I had a partner” were voiced. Students from both groups stated that having a peer partner would have made the

student feel safer in the beginning experiences when providing cares such as transfers and bathing and recalling and collecting necessary supplies, as well as interpreting what had been seen and done with the patient. In the beginning, students from both groups felt that being paired would have decreased anxiety, and in those who were paired, it did, according to the data. Students felt that having someone to explore findings with would have been, or was, helpful.

A major theme that emerged from the focus group interviews was that of communication and some felt their assigned status helped and others felt it hindered. There was no consensus. Some non-paired students were glad they did not have a partner because then they “knew” what had been done, and what had not been done first hand and didn’t need to communicate with another to know this. When spending time with patients, students sometimes found it difficult to talk with patients with another student in the room in the paired group and felt this limited the communication between nurse and client. This was a concern voiced by students from both groups, indicating a focus by the students on the importance of communication. It is interesting to note, however, that in the non-paired group more of the references were to the students’ needs (such as “I could focus on the data I needed to collect without worrying about a partner” and “I didn’t have to share with a partner.”) “I got to connect with my patient. The interview process would have been intimidating for the patient, I think, so I was glad I was the only one.” Paired respondents spoke of “learning from each other” and “seeing how someone else does things” which “expands my knowledge base” according to one student although one student in the paired group did mention “Having another student kind of interrupted therapeutic communication at times.”

The non-paired students comments flowed towards “I suppose this would have been... in the paired group”, indicating a perceived distinction in the fact they were not paired even though questions were constructed to explore experiences in their group. Non-paired students voiced the “potential” positive features of being paired in their descriptions. Statements such as “another set of eyes and ears would have been helpful” and “I wish I had someone there to double check what I was seeing” were expressed. The students who participated in the paired group definitely had more positive vs. negative comments about the intervention.

Students from the paired group expressed a theme that one student is stronger, “knows more, or has more experience”. They recognized a benefit of having a peer partner as opposed to those who did not have that opportunity while realizing there are challenges to working with another. The ability to see how someone else perceives a complex situation was the common theme expressed however, despite the challenges. One student did mention that there was always the chance for a “stronger” student to take the lead in patient care. Students without experience “worried” about slowing the other student down during cares. Overall, students talked of a caring, collaborative environment in contrast to the “didn’t have to share” environment expressed in the non-paired students.

Although students perceive those with previous experience perform better in clinical experiences (as evidenced by a statement “maybe it would be best to put a student without experience with one who has experience”), the quantitative data indicate experience or not has no affect on beginning nursing student anxiety. The qualitative data supports this as well. A student with over 5 years of previous nurse’s aide (CNA) experience stated “I was anxious too! This was a new setting and a new role for me too! I was scared to death and glad I had a

partner!” Students without experience felt they may “slow the other one down” it was not supported by the students with experience.

Students offered mixed responses when asked about the intervention and how it affected their caring. Both groups voiced that “caring” for a patient was stressful whether a partner was present or not in the beginning, and their ability to provide care was not directly related to having a partner or not. One student said, “even when I was anxious, I think I was still able to give good care to my patient” (paired) while another paired student shared “by having to figure out how to work with someone else it detracted from caring”. When asked to “tell me more about this”, the student shared they felt they had to “pay attention to what my partner needed besides what the patient needed”. Students felt they were able to care for a patient even when they were anxious.

Both groups’ responses varied in concerns for self and the patients. Non-paired groups spoke of being “empowered” by caring for a patient by themselves where students who were paired used the terms “supported”, “confidence building having another there with me” and “teamwork”. The non-paired students never mentioned teamwork, even one time, and terms such as “independence”, “confidence”, “compliance”, and “interaction” were used by the non-paired groups when questioned about caring.

4. Overall were you glad you were part of the non-paired (paired) group?

When asked, “were you glad you were in the paired group”, from one focus group there was a yelled, spontaneous response, “YES”.

**Summary**

Three repeated measure ANOVAs explored the relationship between paired and non-paired groups of nursing students' anxiety, caring ability and caring efficacy scores using three different measures over time. Estimated effect sizes and observed power were calculated through SPSS. Students completed the State Trait Anxiety Inventory, Caring Ability Inventory, and Caring Efficacy Scale, scoring their perceived anxiety and caring ability and efficacy. No significant differences were demonstrated in the measures, except for Caring Efficacy, where a significant linear effect was demonstrated within subjects,  $F(1, 44) = 4.430, p < .05, \eta^2 = .091$ , a small effect.

Pearson Product Moment Correlation was used to assess the correlation between the groups and the variables. Amongst the group of paired nursing students, all three correlation coefficients between caring efficacy and caring ability were positive, and statistically significant at  $p < .05$ . Correlations amongst the non-paired group were fewer and there were fewer statistically significant tests.

Based on the result of the linear regressions, caring efficacy does appear to have predictive power for state anxiety and caring ability scores. Up to 50% of the variance in caring ability scores is explained by efficacy and the caring efficacy scores explain less than 10% of state anxiety.

Although not statistically significant, it is interesting to examine the means of the measures over time by intervention (Figure 8, 9, 10). Paired students demonstrate lower anxiety scores, and a higher increase in caring efficacy scores. Caring ability demonstrates a larger mean difference in the non-paired group, and has the largest correlations overall in the regression analysis (at Time 2) with caring efficacy.

Students supported the idea of pairing for their beginning clinical experiences according to the essence of the responses, especially for the first day of clinical learning in each setting. “Pairing needs to be emphasized and promoted”, said one paired student, although paired students did mention they would have liked to provide care for a patient one-on-one during the semester too, at least once. Non-paired reiterated the fact that for the first “couple of times” it might have been nice to have someone there.

Instructors offered the following observations regarding the intervention. Instructors overseeing non-paired groups saw caring behaviors for patients despite the students being anxious. The instructor who had both a non-paired and paired group of students stated:

“The students in the paired group seemed a lot more relaxed in the beginning. They all were operating about the same by the end of the 10 weeks. Students who were not paired were able to demonstrate care just as easily as the other students too.” She also mentioned it was much easier to manage “pairs” than single students, just because of the mere number of students to oversee.

Pairing students also provided the opportunity to have more teachable moments, according to one of the instructors overseeing paired students. The instructor stated the staff “seemed” more agreeable when students were paired because the number of patients the nurse had to follow was reduced. There was no formal follow-up of this finding. In the non-paired group, the numbers of students and patients increased and staff had more responsibility.

## **Chapter 5**

### **Discussion**

One of the main criticisms of statistical tests such as ANOVA is that they only infer statistical significance, which is not the same as practical significance. Misrepresentation of statistical significance and practical significance occurs if interpreted as equivalent. This may lead to the misinterpretation of the results of null hypothesis significance tests (Cohen, 1994; Cline, 2004). Practical significance implies that the results are meaningful, including the existence of a measurable effect that has sensible and important implications. Statistical significance only implies that the data were not obtained by chance, but does not indicate the size of the effect so effect sizes were calculated and reported in addition to the test statistics for this research (Gall, 2001; Thompson, 1996; Wilkinson, 1999).

### **Introduction**

This study had several goals. The first was to determine if a relationship between pairing students would demonstrate a statistical reduction of anxiety scores reported by the beginning-nursing students. Other goals included exploring the role of pairing as an intervention and its effect on caring ability and caring efficacy in the beginning student. Additional underlying goals were to determine whether there was a correlation between caring ability and anxiety in the beginning student, and if this affected the amount of “caring” traits (i.e. caring efficacy) students felt when entering the nursing program. Lastly was to explore the student’s experience of pairing that not fully captured by numbers. “Pairing” is a social phenomenon, and anxiety is a personal, subjective state described by the beginning-nursing student in the nursing education literature. Interventions that may lessen this anxiety



and what affect this has on the beginning students' ability to learn to care is not in the literature.

The study is an experimental repeated measures, between subjects design and the convenience sample consisted of 46 junior nursing students entering their beginning clinical experiences. Equal group sizes of 23 students participated in the study. The instrument used to assess anxiety was the State Trait Anxiety Inventory. The second instrument used to assess caring ability, or the ability to care when in a relationship, was the Caring Ability Inventory. The third instrument used was the Caring Efficacy Scale used to assess the ability to establish a caring relationship. Students completed the CAI and CES measures before entering the clinical setting, at 5 weeks before changing clinical learning locations, and at 10 weeks, and compared within and between groups.

#### **Quantitative research discussion.**

Statistical evidence was found at the .05 level to conclude that:

1. State Anxiety scores are not significantly lower in students who were paired versus those who are not paired for their initial clinical experiences.
2. State Anxiety scores demonstrated an inverse relationship with the Caring Ability scores of beginning nursing students.
3. Caring Efficacy Scores did not have a statistically significant influence on State Anxiety levels at Time 2 or Time 3, but did at Time 1 in the analysis.
4. Caring Efficacy scores did have a statistically significant influence on Caring Ability scores at all three times of measurements.
5. Pairing of students for their initial clinical experiences did not significantly increase Caring Ability scores across time.

This researcher hypothesized that pairing students for their initial clinical experiences would demonstrate a statistically significant difference in anxiety scores, and this proved to not be the case in this study. However, observations made by other nurse educators in this study who have experienced student anxiety in beginning students when this intervention is implemented did find anxiety is substantially lowered when students are paired. Students verbalized how this intervention supported them in their initial assignments in this study.

The anxiety scores were lower at Time 1, 2 and 3 and correlate with higher caring ability scores as anxiety decreases. This is important information that can be used when this intervention is implemented for beginning students because persons who score higher in anxiety tend to score lower in emotional stability (George & Mallery, 2009) and in this study, higher anxiety scores correlated with lower caring ability scores. Emotional stability is an important characteristic in learning situations.

There were several surprising findings not explained in previous literature. One of the most surprising is the actual increase in anxiety scores at the second data collection point (Figure 8). Students report that “stories” of what was to come in their clinical learning situations from other students made their anxiety worse. Previous unpublished qualitative data suggests that when students actually enter the care setting, the expectations of what can potentially occur can increase worry and anxiety (King, 2008).

The findings of the inverse relationship of caring ability and anxiety is supported however, with caring ability scores dropping at collection point 2 as the anxiety scores increased. Although statistically these findings are not significant, anecdotally they are interesting and in keeping with the original hypotheses being explored and illustrated by the correlations reported in Table 11.

The caring ability inventory was developed to “measure the ability to care when one is involved in a relationship” (Watson, 2009, p. 117). Again, although between subject differences were not found to be statistically significant, anecdotally the assumptions of Nkongho’s conceptual basis for the instrument’s ability to measure caring while in a relationship with another are in keeping with the results.

Another noteworthy observation is that of the mean caring efficacy scores (see Figure 10) compiled using Carolie Coates CES (Coates, 1999) “Caring Efficacy Scale” [CES]. The caring efficacy scale tool was designed to assess an individual’s confidence in their ability to “express a caring orientation and establish a caring relationship with patients” (Watson, 2009, p. 163). These findings may indicate a “perception” of being more able to function, when the actual caring ability scoring (when in a relationship with another) is more reflective of the ability. The statistical analysis, however, was non-significant except for Time 1 in the caring ability findings.

The CES and the job stress inventory tool correlates negatively in previous studies and correlates positively with personal accomplishment and is a tool that offers content validity with reference to the carative factors in Watson’s theory.

Nursing is described as both an art and a science (Benner et.al, 2009). Therefore, there is a place for the scientific, quantitative measures in nursing and also a place for the art of nursing, or what “nursing” means to the individual in the profession, even as a novice. Teaching of nursing combines both of these situations and the qualitative portion of this study reinforces the notion of nursing as an art, or individual creation or interpretation of what is. By knowing what and how the student feels about teaching interventions, pedagogical principles can be integrated into successful teaching practice. The science is the measuring.

The qualitative data reinforced a notion that is prevalent in nursing practice culture, and that is one of “you’re on your own,” meaning that when patient conditions become critical, you must meet that challenge alone. Initial assessments are generally an individual nurse-patient responsibility in nursing practice, and we must, as a profession be committed to the best care and outcomes for our patients. This begin to establish and enable networks of caregivers who are all responsible and have those skills and aptitudes “to watch each others’ back” as we provide care. The ability to care is ultimately the goal in contrast to the perceived individual confidence in that ability, and development of collaborative group processes that will ensure positive patient outcomes is imperative (Schuster & Nykolyn, 2010).

The literature speaks to the anxiety the clinical student experiences during their “beginning” clinical experiences. Although the initial measurements of anxiety were lower than the measurements of the second data collection, both can be considered “initial” experiences. Time 1 is entering the setting as a nursing student and at Time 2 they are entering a new setting after experiencing clinical responsibilities at the first institution. Perhaps the increase in anxiety is due to the fact the student now knows what can be expected and that merits more anxiety than the unknown responsibility. During previous discussions with students, they have verbalized the fact that they had no idea of the responsibility and scope of that responsibility until they actually participated in the clinical environment. “I just never knew how much a nurse needs to know” was a statement by one student that reflects the possible explanation for the increase in anxiety scoring at Time 2 of the data collection. Statistical analysis were used to examine factors such as instructor bias and site location and the tests were non-significant.

When providing this supportive environment for the beginning nursing student, tertiary prevention measures that include readaptation, reeducation and maintenance of stability are being provided too. The goal is to provide tools for the student when entering this new, stressful environment.

Using this model, it might be said that the “normal line of defense” was measured by the Trait Anxiety Scale, and students indicated no statistical difference in these scores. Even though there were no statistical differences between paired and non-paired students in anxiety, the intervention of pairing provided added support to the students’ “flexible line of defense” according to results of the qualitative data. Theoretically, their “basic structure energy resources” were protected more completely by primary prevention and the increased tools in the internal “lines of resistance” (Neuman & Fawcett, 2002, p. 13).

When paired, students felt they learned skills they did not present with from their partner. “We learned from each other,” one student stated. “Everybody has strengths and weaknesses, so it just kind of goes hand in hand!” The students did express a desire to not be paired the entire 10 weeks of clinical, and wished to work by themselves at least once. This would support a common conception of the zone of proximal development of “interaction on a task between a more competent person and less competent person...” will help the less competent person to become “independently proficient at what was initially a jointly accomplished task” (Kozulin et. al (eds), 2003, p. 41). This is known, according to this theory, as a “range of tasks”, initially performed in collaboration and then transferred to individual ability. This is the goal of clinical nursing education, and then back to the collaboration aspect for care. CES scores demonstrate a positive outcome in this area.

Nel Noddings is well known for her views on the ethics of care and education. Her theory is that “caring” involves connections between the carer and the cared for and a degree of reciprocity with both parties gaining from the exchange in some way. As a nurse educator, I see the students learning to care about each other and the patient during the caring-for encounter. This “caring about” is more universal and wholistic and according to Noddings, is the root of a sense of justice. All these are important concepts of nursing care. I hope they see I care about their learning, which will again model the behavior in their encounters with patients and society. Noddings purports we learn to “care-about” after first knowing what it means to be “cared for”. She states that as educators, we must show by our behaviour that we care (Smith, 2004).

Jean Watson is known for her theory of caring and caring science in nursing. On her website ([http://www.watsoncaringscience.org/caring\\_science/index.html](http://www.watsoncaringscience.org/caring_science/index.html)), she explores the place that each of us are in our existence and our interest in expanding caring consciousness and actions to “self, other, environment, nature, and a wider universe”. This study allowed the student to explore where they were in this paradigm with their patients and with each other as learners. The focus was shifted from a modern medical technocure orientation to a true, caring-healing-loving model in the paired students vs. non-paired who were more into themselves. Although this was not statistically evident, it was evident in the overall scores and in the qualitative data collected.

Watson’s ten carative factors provide a framework for instruction and provide a framework of caring for the students. All these factors are best discovered and formulated and reinforced via interpersonal relationships that are more accessible via paired experiences.

**Discussion of Hypothesis One:** Pairing students for their initial clinical experiences will lower the anxiety experienced during beginning clinical-care experiences and improve caring efficacy and caring ability scores of the student over time.

This researcher hypothesized that pairing students for their initial clinical experiences would lower the anxiety experienced by the beginning students over time when paired. It was anticipated that the group of paired students would have statistically lower anxiety scores as measured by the State Trait Anxiety Inventory over the ten-week time frame comprising the beginning clinical learning experiences. Although the means of the anxiety scores were lower in the paired group, the results were not statistically significant. A repeated measures ANOVA was used to obtain these results that suggest pairing does not significantly lower anxiety scores of students in the beginning clinical setting.

Focus group analysis does suggest that there is practical significance in the pairing intervention. Peer support, collaboration, communication, and collaborative learning were positive themes that emerged from the qualitative data. Verification from clinical instructors as to the positive aspects of increased opportunities for teachable moments, less stress on clinical sites and nursing staff, and increased time availability for students were all factors that factored into this conclusion. The nursing literature discusses collaborative experiences for students at different levels of education in nursing programs as positive experiences, and suggests positive outcomes when learning to care for beginning students of the same level of education in this study.

Caring efficacy scores as measured by the Caring Efficacy Scale (CES) did demonstrate statistical significance over time. The non-paired group presented with a higher mean score of CES at Time 1 (160.17 vs. 151.78 in the paired group), the difference was not

statistically different. The end means of the CES scores however, increased to 160.91 (a change of 2.74) for non-paired and increased from 151.78 to 156.35 (an increase of 4.57) in the paired group. Although the mean scores are not statistically significant, this finding suggests that paired students were more able to establish a caring relationship, which is keeping with the definition provided for caring efficacy in the literature. The paired group also showed continuous significant increases in the CES scores, where as non-paired students showed a 1.65 point decrease in caring efficacy at the Time 2 measurement with overall improvement by Time 3.

Caring ability scores did not demonstrate any statistically significant change over time between the groups. The non-paired group had the greatest increase in scores of 3.91 points between Time 1 and Time 3. The paired group also increased by 1.79 points over time.

The focus group reports support these findings. Caring ability, as defined by the study and the literature, is the performance of procedures and doing for another. Students reported a greater control and growth in this area knowing they would be the one performing procedures. When they were able to do this successfully, their confidence translated into perceived ability as evidenced by the CAI scores and by comments. They were able to connect theory and practice in the clinical setting and did not have to share the experience or consider the peer in the interaction.

**Discussion of Hypothesis two:** Caring efficacy will predict anxiety and caring ability scores.

The ability to care when in a relationship defines caring efficacy. In keeping with systems theory and the collaborative nature of health care today, nurses must learn to establish and maintain relationships at all levels of care. The hypothesis that anxiety and caring ability



affect the perceived ability of the student was statistically significant, except for state anxiety, measured at Time 2. This time period resulted in higher anxiety scores and lower caring ability and efficacy scores. The reason for this is unknown, but students, when questioned said it was due to “stories” of what the expectations were to be, and they were anxious about the new environment. A correlational analysis factoring site and instructor for correlation suggested no significant correlations between the variables.

Caring efficacy predicts caring ability and has an effect on the anxiety scores of students in their beginning clinical courses.

**Discussion of Hypothesis 1a:** What is the lived experience of the beginning nursing student when providing care during his/her initial clinical learning experiences, when paired or not?

Students reported experiences from their own point of view and lived experience. Both groups were anxious, but believed it was their own abilities that defined anxiety and caring ability. This defines efficacy.

Both groups expressed desire to have a partner “at first”. This support of close proximity reducing student’s perception of anxiety was not reflected as statistically significant in the State Anxiety scores.

### **Limitations.**

There were several limitations of this study. First, this study only included students from one university setting. There were limitations in power due to the small sample size (N=46), even with the repeated-measures design, as evidenced by the final effect size ( $\eta^2 = .010$  in caring ability, and anxiety,  $\eta^2 = .003$  and caring efficacy,  $\eta^2 = .006$ , small to negligible). A possible explanation is the extreme anxiety that is described in the literature

for the beginning student is so constant that any differences are not perceived by the students, but are recognized by the educator in the setting. Spielberger (1983) has identified that under conditions producing great anxiety there is little variation in STAI scores.

Another limitation is the absence of a faculty member rating the students' performance when caring for patients to their reported anxiety and caring ability scores. Self-report is difficult to interpret and no predictive value should be assigned to the findings. The Caring Efficacy Scale (Coates, 1995) has reported positive correlations when used with a clinical evaluation rating tool ( $r = .37$  to  $r = .63$ ,  $p = .01$ ) (Watson, 2009, p. 164) so this could be used for further research.

### **Implications for practice.**

By modeling caring in clinical learning, it may facilitate nursing students' learning to care (Sawatzky et. al., 2009). This concept fits well with the student-centered focus of nursing in the 21<sup>st</sup> century that focuses on client-centered care. When the educator uses approaches that are relational and generative for the student (client), they may be transferable from the student to patient (the student's client) as well (Young & Maxwell, 2007). These student-centered approaches may support co-learning and reflect the rapidly changing knowledge base of nursing. This is also reflective of constructivist learning ideas practiced within some current professional programs.

Clinical instructors seek patient's whose conditions and situations provide an atmosphere conducive to learning for the beginning student. Clinical sites that meet this requirement are in great demand as the number of schools of nursing increase to meet the societal demand for an ever-increasing number of nurses to fill the impending shortage. This "pairing" of students after optimal learning situations have been located in this resource-

scarce environment allow for a greater number of students during the instructor's oversight of the learning environment, potentially doubling teachable moments.

There was no statistical significance in anxiety scores between the groups. There are, however, positive, practical factors of pairing students for their initial clinical learning experiences:

1. Pairing can occur to allow for the need for fewer patient assignments that provide learning experiences for students.
2. Communication is practiced and developed to bring to the workplace as a collaborative skill so important to healthcare.
3. Nursing faculty can focus on more "teachable" learning moments. When pairing students, the opportunity for providing instruction and development and critical thinking exploration double.
4. By letting the student know that a curriculum was constructed that attempts to address a universal concept of anxiety in the beginning clinical experiences, modeling of caring is initiated from the beginning in this caring profession. According to Noddings, there is reciprocity between care and caring. This is demonstrated in the caring behaviors exhibited by faculty for the students when modeled in the curriculum.
5. Collaborative learning supports the skill of collaborative practice.

Learning appropriate and effective communication skills are imperative to safe patient care by promoting collegial relationships that focus on these communication skills and leadership principals that have been described for students of different levels in their education (Hunt & Ellison, 2010). Vgotsky's Zone of Proximal Development theory provided the theoretical basis stating by being in proximity with a more knowledgeable

“other” through social interaction and collaboration with peers, the potential to learn behaviors from another, exists. Proximal development refers to actual development where the level develops via that proximity (Daley et al., 2008; Kozulin et al., (eds), 2003). All students come with different life experiences, knowledge, skills, attitudes, and behavior experiences that differ from their colleagues. This give and take sharing of experiences provides support for growth in the learning environment for the beginning clinical learning of the students resulting in collegial socialization that may help develop mechanisms coping with anxiety (McAllister & Osborne, 1997). ZPD also introduces the student to systems thinking needed to provide optimal health care for society.

### **Implications for research.**

The goal of developing the technical skills of practice in the nursing student is a source of extreme anxiety. The urge to “care” competes with the real need to learn through practice and these two things feel incompatible to the student (O’Connor, 2006). Beginning experiences, including both tasks and issues, are difficult for the student when considering the patient in the situation. This is a time when the student is most self absorbed and anxious, but still able to recognize caring, or lack of it, when they see it.

Despite their general tendency toward caring in their interactions with patients, students are often self- rather than other-centered. Does this result in mere performance, or caring, or performing caring? Further research could describe and quantify these phenomena.

The effects of anxiety on the beginning nursing students’ ability to care for patients requires further research and evaluation when learning to care for patients. Exploration of factors that affect anxiety and interventions that may reduce it, are needed. Exploring factors strengthening the student’s normal line of defense is a potential area for research. The

literature describes factors such as fear of harming the patient, instructor expectations, time factors, and others creating anxiety for the student, so research should address these factors at a primary prevention level. Pairing of students for their beginning experiences did not demonstrate a statistically significant difference in anxiety scores, so other factors not captured by the data are unexplained.

The literature is abundant in the verification of the presence of anxiety, but sparse in exploring ways to reduce anxiety to create optimal learning environments for the beginning-nursing students. As educators, we must not fall into the trap of thinking it must always be this way or that it is a rite of passage. To maximize learning opportunities in the precious clinical learning environment, education must find ways to address extreme emotional states and ways to help students learn to care.

Further research at the end of a nurse preparation program assessing anxiety and caring attributes may provide insight to the data collected in the beginning. Research exploring the beginning nurse's anxiety and caring once licensed and in practice may provide insight to this intervention that was not captured by the collected data during the clinical learning experiences.

## **Conclusion**

As nursing moves from “doing for” to a paradigm of “working with” the patient to provide the support necessary to achieve and maintain wellness (O'Connor, 2006), methods of teaching students how to collaborate and communicate must be promoted in the caring environment. Nursing is shifting from a behaviorist model to an humanistic approach, so environments conducive to learning these skills must be identified, modeled, used, and evaluated with everyone involved enabling and supporting this new paradigm.

Both groups identified the desire (and attainment, according to those students who were paired) of the peace of mind pairing with a peer for initial experiences provided. Although some contextual demands are impossible to change for the beginning student (such as assignments, clinical sites, instructor availability, etc.), by acknowledging the students' perceptions of the situations and offering support during the perceived stressful situations, reduction of perceived anxiety was achieved by providing the opportunity for peer support in a structured social environment. Previous studies indicate support systems as a positive coping resource (Gibbons, Dempster, & Moutray, 2007).

Students also stated that even if they were not intentionally paired to provide care for patients, they felt they had their peers to "help with procedures and to talk about what was going on with the patient". In an individualistic society, a collaborative health care environment requires positive connections to provide safe care.

Students entering the clinical setting for the first time express this situation as creating the highest anxiety experience for them (Kleehammer, Hart, & Keck, 1990). Students in both clinical setting groups agreed that pairing for the initial experience would greatly reduce anxiety and allow them to focus more of their emotional energies on the patient and learning how to provide safe nursing care. Helping relationships are a prelude to future mentoring in the nurse role (Daley et. al., 2008) and are an important quality needed in the profession that should be nurtured while the student is in the educational setting.

Research has found that anxiety affects learning and Watson (2009) suggests nursing students can learn to care. By lowering anxiety scores, caring ability scores increased, although not statistically. Learning from others and caring environments, as described by Vgotsky and Noddings in the literature that are introduced as an intervention for beginning

students, increased the ability to establish caring relationships with patients. Positive practical implications are present in this study.

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**Appendix A: Information Statement for Spring 2010 Dissertation Research Study**  
with Linda King

The Department of Curriculum and Teaching in the School of Education at the University of Kansas and the Baker University School of Nursing support the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

I am conducting this study to better understand feelings and caring behaviors identified by beginning nursing students via survey instruments. Participation in this study will entail your completion of 3 different surveys at 3 different times in the semester, during class time. You will be randomly assigned to a clinical group that is either providing one on one care for their patient, or paired with another student while providing care throughout the first semester of clinical instruction or a mix of both conditions. The questionnaire packet should take no more than 30 minutes to complete, with the first session expected to be approximately 30 minutes. You may be contacted at a later date to be interviewed about your experiences, but again, participation is completely voluntary and permission may be withdrawn at any time.

Participation in this study should cause no more discomfort than you would experience in your everyday life. I believe that the information obtained from this study will help students and nurse educators gain a better understanding of feelings and caring behaviors beginning nursing students experience when entering their clinical learning activities, and help your development as a competent and caring managers and providers of care. Your participation is solicited, although strictly voluntary. Your name will not be associated in any way with the research findings. If you would like additional information concerning this study before or after it is completed, please feel free to contact me, or my faculty sponsor by phone, email, or mail.

For participation in this study, you will receive one extra percentage point to be added to your theory grade pending successful completion of the theory and clinical courses. If you choose not to participate, you will be offered an opportunity to participate in an extra credit writing activity worth one percentage point that will be added to your theory grade pending successful completion of the theory and clinical courses. You must participate at all three times to receive the extra credit point.

Completion of the surveys indicate your willingness to participate in this project and that you are over the age of eighteen. If you have any additional questions about your rights as a research participant, you may call (785) 864-7429 or (785) 864-7385 or write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email [mdenning@ku.edu](mailto:mdenning@ku.edu). You may also contact the researcher at the contact information below.

Sincerely – and thanks,

Linda King, RN, MS, CNS, PhD(c)  
Principal Investigator  
Assistant Professor  
Baker University School of Nursing  
Topeka Kansas Campus  
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[Linda.king@bakeru.edu](mailto:Linda.king@bakeru.edu)

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Appendix B: DATA COLLECTION TOOL – RESEARCH STUDY SPRING 2010  
DEMOGRAPHIC INFORMATION

SUBJECT NO: \_\_\_\_\_

GENDER: ☐ male    ☐ female    AGE \_\_\_\_\_

PREVIOUS HEALTHCARE/PATIENT CARE EXPERIENCE?    ☐ yes    ☐ no

If yes, check all that apply:

☐ Certified Nurses Aide (CNA)    ☐ Patient Care Technician (PCT)  
☐ Certified Medication Aide (CMA)    ☐ Other \_\_\_\_\_

Describe (such as CNA in a longterm care facility X 5 years; or “no formal experience but I cared for my grandma in my parents home X 1 year ):

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DO YOU HAVE ANY PREVIOUS DEGREES?    ☐ yes    ☐ no

Describe                      (if                      you                      wish):                      -

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For use by Linda King only. Received from Mind Garden, Inc. on February 9, 2010



[www.mindgarden.com](http://www.mindgarden.com)

To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material;

Instrument: ***State-Trait Anxiety Inventory for Adults***

Authors: ***Charles D. Spielberger, in collaboration with R.L. Gorsuch, G.A. Jacobs, R. Lushene, and P.R. Vagg***

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Sincerely,

Robert Most  
Mind Garden, Inc.  
[www.mindgarden.com](http://www.mindgarden.com)

## APPENDIX D: Scale #2

Please read each of the following statements and decide how well it reflects your thoughts and feelings about other people in general. There is no right or wrong answer. Using the response scale, from 1 to 7, circle the degree to which you agree or disagree with each statement directly on the form. Please answer all questions.

	1	2	3	4	5	6	7	
	strongly disagree				strongly agree			
	<b><u>Strongly Disagree</u></b>							<b><u>Strongly Agree</u></b>
1. I believe learning takes time.	1	2	3	4	5	6	7	
2. Today is filled with opportunities.	1	2	3	4	5	6	7	
3. I usually say what I mean to others.	1	2	3	4	5	6	7	
4. There is very little I can do for a person who is helpless.	1	2	3	4	5	6	7	
5. I can see the need for change in myself.	1	2	3	4	5	6	7	
6. I am able to like people even if they don't like me.	1	2	3	4	5	6	7	
7. I understand people easily.	1	2	3	4	5	6	7	
8. I have seen enough in this world for what I need to know.	1	2	3	4	5	6	7	
9. I make the time to get to know other people.	1	2	3	4	5	6	7	
10. Sometimes I like to be involved and sometimes I do not like being involved.	1	2	3	4	5	6	7	
11. There is nothing I can do to make life better.	1	2	3	4	5	6	7	
12. I feel uneasy knowing that another person depends on me.	1	2	3	4	5	6	7	
13. I do not like to go out of my way to help other people.	1	2	3	4	5	6	7	
14. In dealing with people, it is difficult to let my feelings show.	1	2	3	4	5	6	7	
15. It does not matter what I say, as long as I do the correct thing	1	2	3	4	5	6	7	
16. I find it difficult to understand how the other person feels if I have not had similar experiences.	1	2	3	4	5	6	7	

- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 17. I admire people who are calm, composed and patient.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. I believe it is important to accept and respect the attitudes and feelings of others.         | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. People can count on me to do what I say I will.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. I believe that there is room for improvement.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. Good friends look after each other.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. I find meaning in every situation.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. I am afraid to "let go" of those I care for because I am afraid of what might happen to them. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. I like to offer encouragement to people.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. I do not like to make commitments beyond the present.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. I really like myself.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27. I see strengths and weaknesses (limitations) in each individual                               | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. New experiences are usually frightening to me.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29. I am afraid to be open and let others see who I am.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 30. I accept people just the way they are.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 31. When I care for someone else, I do not have to hide my feelings                               | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 32. I do not like to be asked for help.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 33. I can express my feelings to people in a warm and caring way                                  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 34. I like talking with people.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 35. I regard myself as sincere in my relationships with others                                    | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 36. People need space (room, privacy) to think and feel.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 37. I can be approached by people at any time.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

APPENDIX E: Used with permission from Dr. Ngozi O. Nkongho, PhD  
Written permission obtained 9/15/09

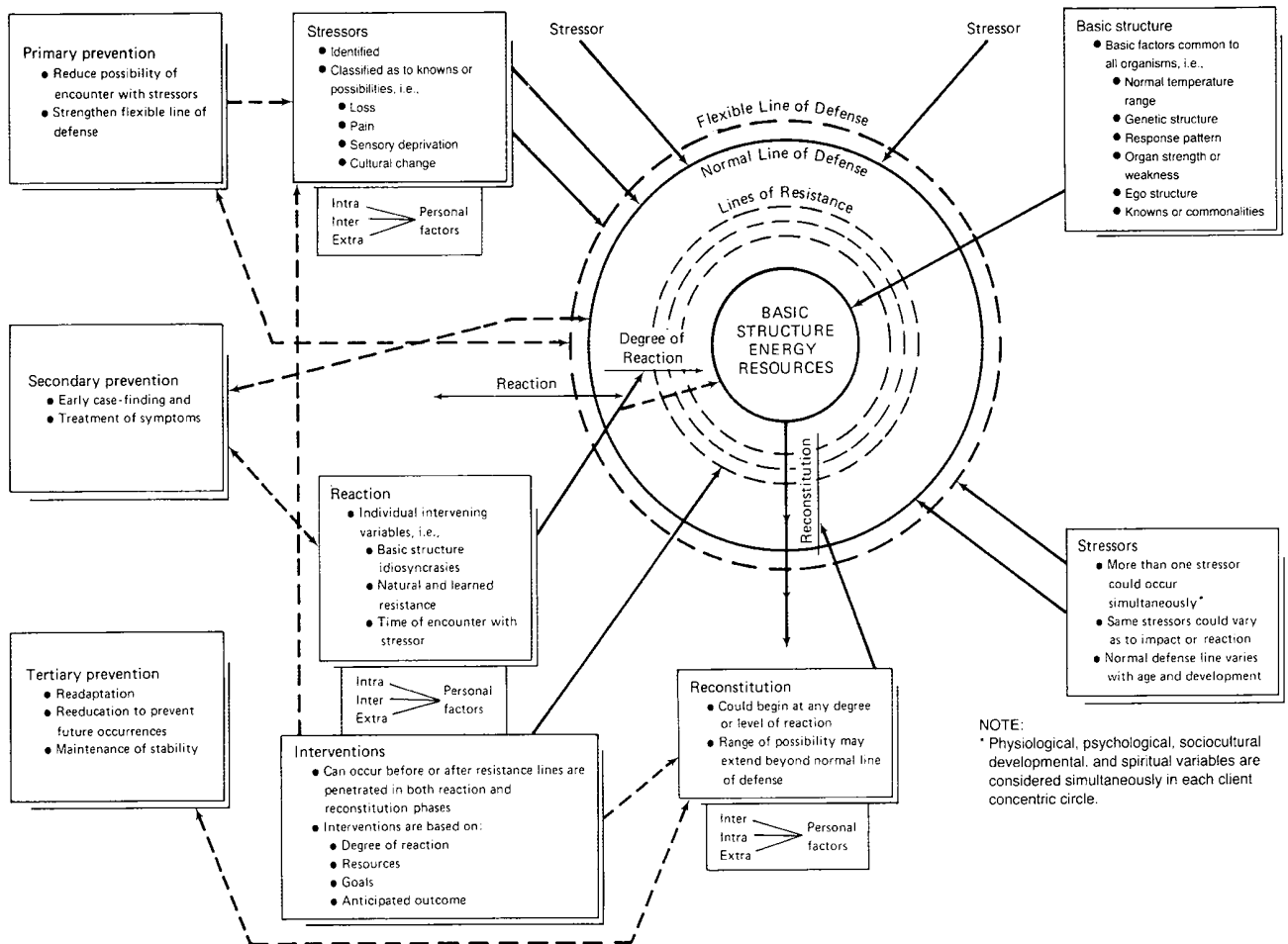
## Scale #3

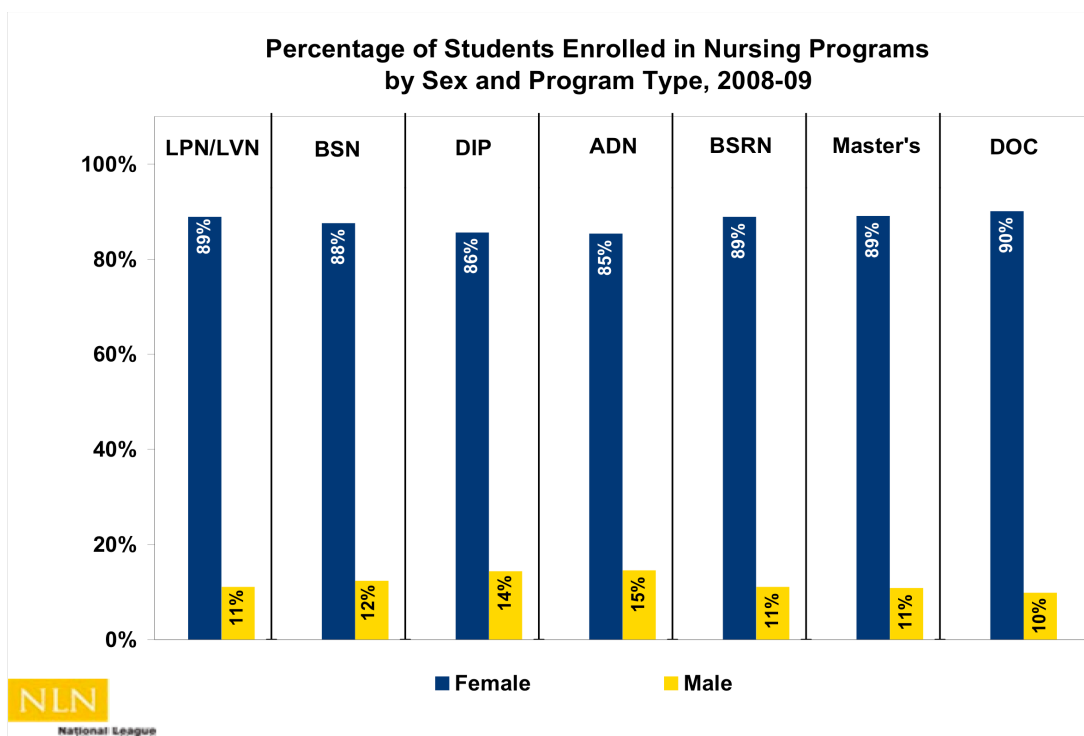
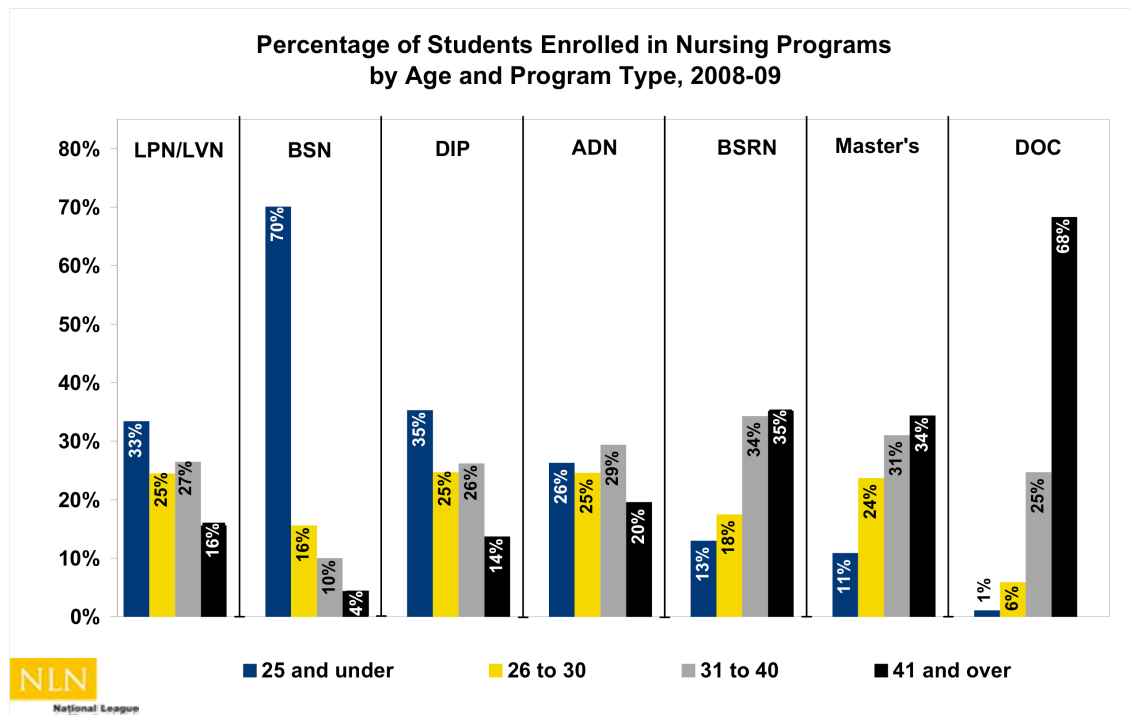
<p><b>When you are completing these items, think of your recent work with patients/clients in clinical settings. Circle the number that best expresses your opinion.</b></p> <p><b>Rating scale:</b>  <b>-3 strongly disagree</b>  <b>-2 moderately disagree</b>  <b>-1 slightly disagree</b>  <b>+1 slightly agree</b>  <b>+2 moderately agree</b>  <b>+3 strongly agree</b></p>						
	<b>Strongly Disagree</b>			<b>Strongly Agree</b>		
1. I do not feel confident in my ability to express a sense of caring to my clients/patients.	-3	-2	-1	+1	+2	+3
2. If I am not relating well to a client/patient, I try to analyze what I can do to reach him/her.	-3	-2	-1	+1	+2	+3
3. I feel comfortable in touching my clients/patients in the course of caregiving.	-3	-2	-1	+1	+2	+3
4. I convey a sense of personal strength to my clients/patients	-3	-2	-1	+1	+2	+3
5. Clients/patients can tell me most anything and I won't be shocked.	-3	-2	-1	+1	+2	+3
6. I have an ability to introduce a sense of normalcy in stressful conditions.	-3	-2	-1	+1	+2	+3
7. It is easy for me to consider the multifacets of a client's/patient's care at the same time as I am listening to them	-3	-2	-1	+1	+2	+3

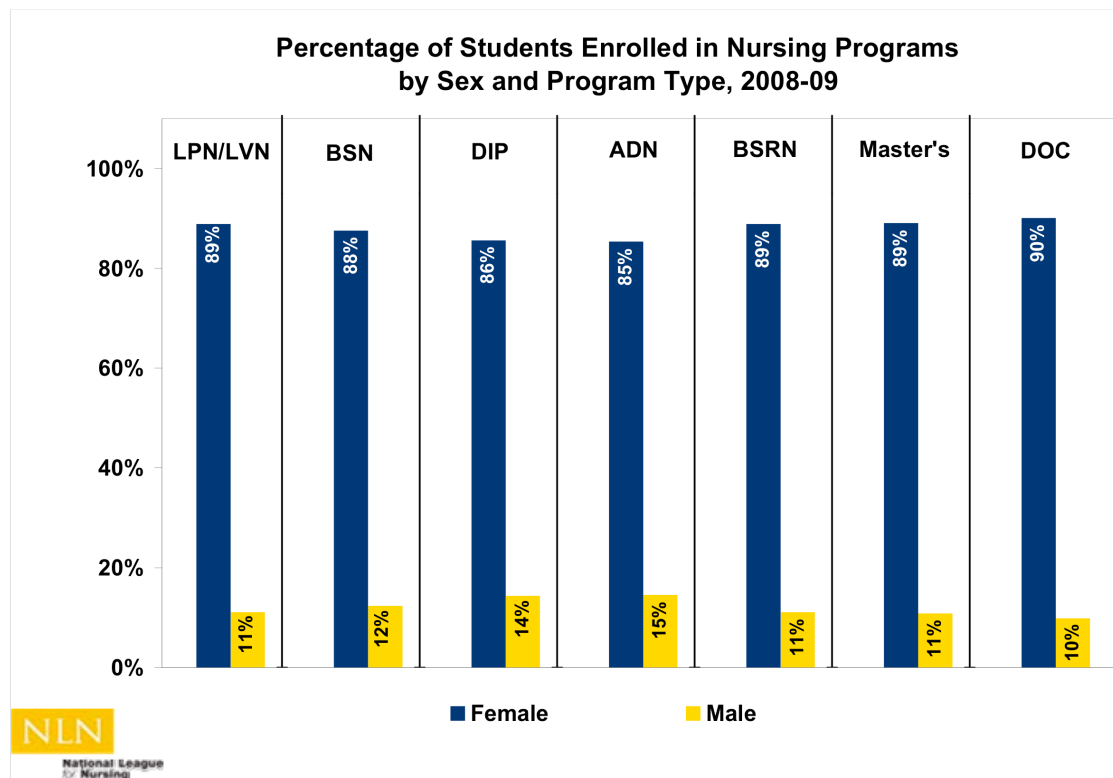
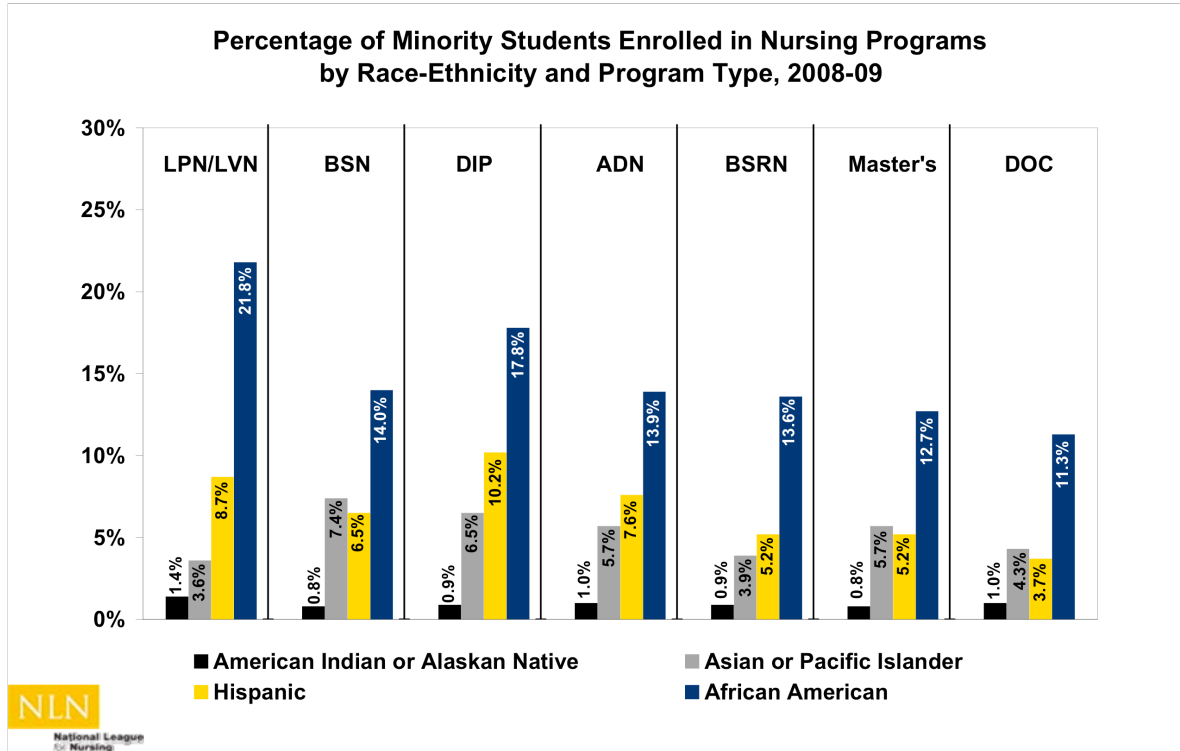


8. I have difficulty suspending my personal beliefs and biases in order to hear and accept a client/patient as a person	-3	-2	-1	+1	+2	+3
9. I can walk into a room with presence of serenity and energy that makes clients/patients feel better.	-3	-2	-1	+1	+2	+3
10. I am able to tune into a particular client/patient and forget my personal concerns.	-3	-2	-1	+1	+2	+3
11. I can usually create some way to relate to most any client/patient.	-3	-2	-1	+1	+2	+3
12. I lack confidence in my ability to talk to clients/patients from backgrounds different from my own.	-3	-2	-1	+1	+2	+3
13. I feel if I talk to clients/patients on an individual, personal basis, things might get out of control.	-3	-2	-1	+1	+2	+3
14. I use what I learn in conversations with clients/patients to provide more individualized care.	-3	-2	-1	+1	+2	+3
15. I don't feel strong enough to listen to the fears and concerns of my clients/patients.	-3	-2	-1	+1	+2	+3
16. Even when I'm feeling self-confident about most things, I still seem to be unable to relate to clients/patients.	-3	-2	-1	+1	+2	+3
17. I seem to have trouble relating to clients/patients.	-3	-2	-1	+1	+2	+3
18. I can usually establish a close relationship with my clients/patients.	-3	-2	-1	+1	+2	+3
19. I can usually get patients/clients to like me.	-3	-2	-1	+1	+2	+3
20. I often find it hard to get my point of view across to patients/clients when I need to.	-3	-2	-1	+1	+2	+3
21. When trying to resolve a conflict with a client/patient, I usually make it worse.	-3	-2	-1	+1	+2	+3

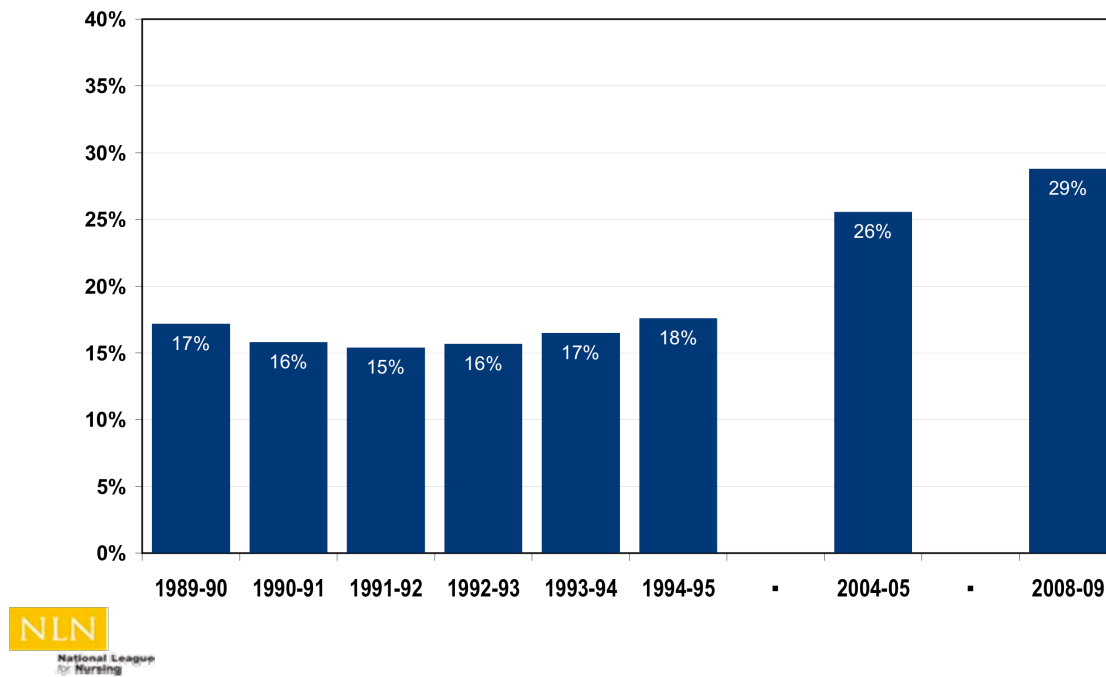
22. If I think a client/patient is uneasy or my need some help, I approach that person.	-3	-2	-1	+1	+2	+3
23. If I find it hard to relate to a client/patient, I'll stop trying to work with that person.	-3	-2	-1	+1	+2	+3
24. I often find it hard to relate to clients/patients from a different culture than mine.	-3	-2	-1	+1	+2	+3
25. I have helped many clients/patients through my ability to develop close, meaningful relationships.	-3	-2	-1	+1	+2	+3
26. I often find it difficult to express empathy with clients/patients.	-3	-2	-1	+1	+2	+3
27. I often become overwhelmed by the nature of the problems clients/patients are experiencing.	-3	-2	-1	+1	+2	+3
28. When a client/patient is having difficulty communicating with me, I am able to adjust to his/her level.	-3	-2	-1	+1	+2	+3
29. Even when I really try, I can't get through to difficult clients/patients.	-3	-2	-1	+1	+2	+3
30. I don't use creative or unusual ways to express caring to my clients/patients.	-3	-2	-1	+1	+2	+3

Figure 1 *Neumans Systems Model*





**Percentage of Minority Students Enrolled in Basic RN Programs:  
1989-90 to 1994-95, 2004-05, and 2008-09**

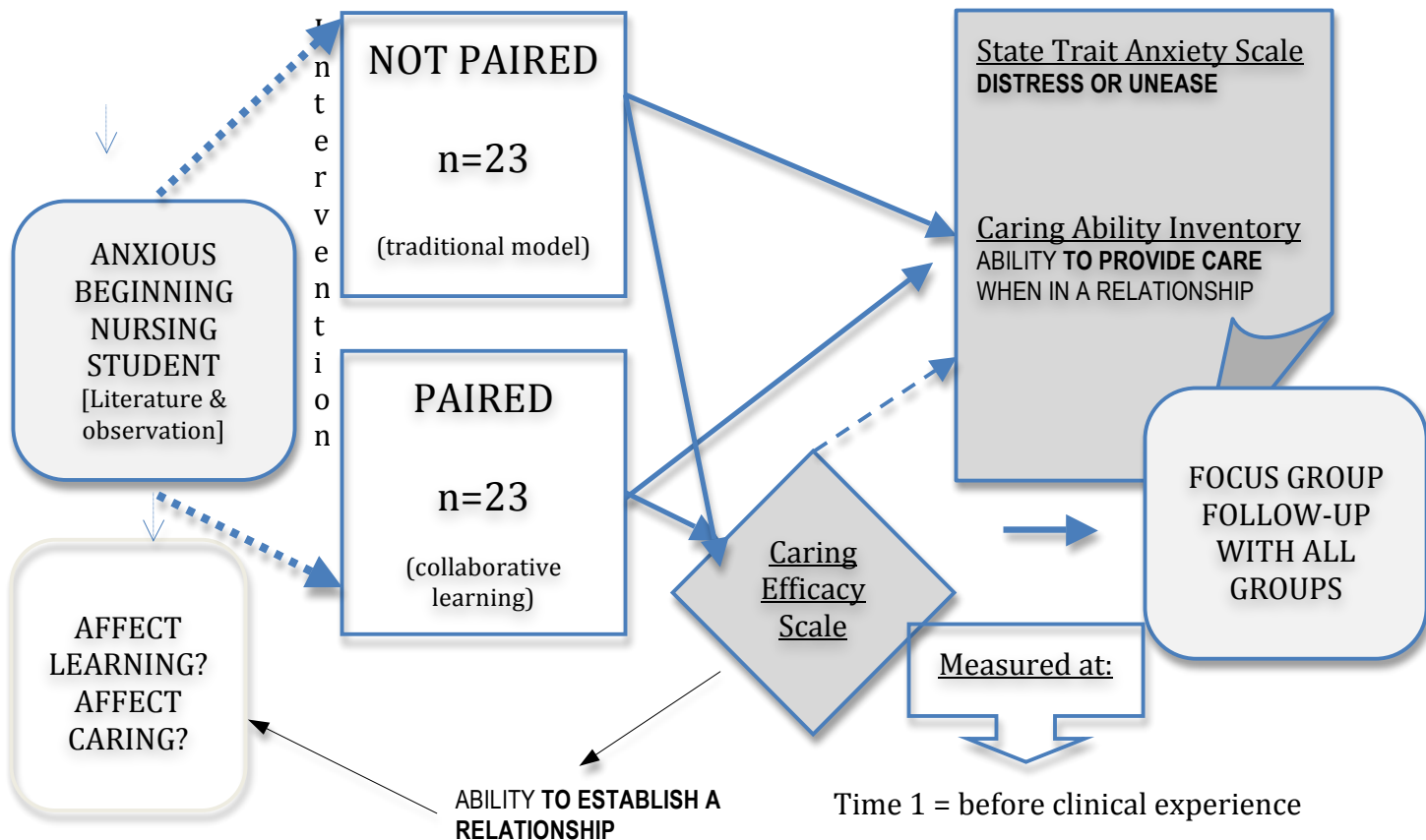


**Beginning nursing student** = arrives with flexible line of defense

\*Stressors = clinical experiences = **ANXIETY (affect caring?)**

Primary prevention = Intervention = pairing [COLLABORATIVE LEARNING]

### CLINICAL EXPERIENCES



Time 1 = before clinical experience

Time 2 = at 5 weeks; before site switch

Time 3 = after clinical experiences over